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## Responses To DRAFT EIR



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STAFF COMMENTS

PEDESTRIAN WIND ENVIRONMENT AT COPELY PLACE

INTERIM REPORT, EOEA NO. 03074

Sandra Uyterhoeven  
July 23, 1980

The interim report is generally well-organized, clearly presented and contains excellent explanations of methodology.

I submit the following comments and questions, which I hope will assist in the preparation of the final report.

Comments

1. The Plan in Figure 1 should be expanded to show the following buildings referred to in the text: Hancock, Pru, Copley Plaza, Trinity Church, Gloucester Tower, Mini-Pru. This would help the reader to visualize the interaction of these buildings with wind patterns from various directions and from other buildings. Ring Road should be labeled. The pedestrian promenade over the railroad tracks near Back Bay Station should be shown.
2. Table 2 and Table B-1 appear to contain errors:
  - A. The asterisk relating to the footnote is omitted from the text;
  - B. The sentence in the footnote does not make sense as written;
  - C. All the "mps" numbers relating to (mph) are incorrect.
3. What are the principal existing pedestrian patterns, and what will they be following completion of Copley Place?
4. The report states (page 10) that although winds at Hancock and Prudential Towers were not included in the evaluation of existing conditions, their effects were well simulated when they were upstream of the proposed Copley Place. Are their effects a factor only when they are upstream? Will Copley Place have any effects on them, or on pedestrian approaches to them? Could the increased velocities pull more glass out of Hancock? This brief treatment of the effects of two buildings so renowned for their wind problems constitutes an exception in a report where methodologies are otherwise well-documented.
5. Although locating the pedestrian bridge linking Copley Place to the Pru in a relatively sheltered area was suggested (page 14) as a candidate approach to mitigating impact, enclosure or partial enclosure of the bridge was not. What percentage of the time, if at all, would such enclosure be warranted by wind conditions at bridge level? Can the report suggest a relatively sheltered location for the bridge?
6. Can results which could be achieved by tree planting along St. James Street and Huntington Avenue and by construction of an awning along the Huntington facade of the Western International Hotel be quantified to some extent? Are

there examples of similar attempts to mitigate wind effects which have produced measured results? Could it, for instance, be possible to achieve reductions to existing levels; or in locations where the acceptable threshold is already exceeded, could existing levels be improved upon? Which types of trees constitute the most effective buffer?

7. Mitigation measures discussed are limited to pedestrian shielding. What types of structural modifications exist which might lessen the worst impacts? 7

8. A detailed explanation of the wind environment should be given for each of the 7 sensor points where 13.6 mps is exceeded. Mitigation measures should be considered for all 7 locations, as well as for other areas where wind speeds approach the comfort threshold. According to Table I there are an additional 7 sensor points with wind speeds in the 11.5-12.8 range. These would be classified as strong breeze or moderate gale on the Beaufort Scale, where use of umbrellas is difficult, walking against the wind is inconvenient and whole trees are in motion. Pedestrian Safety/Comfort Standards in Table 8-4 assign 11.2 mps velocities a permitted occurrence frequency of 5%; higher velocities are assigned lower occurrence frequencies. This means that the wind speeds ranging from 11.5-12.8, although below the 13.6 discomfort level, can cause unacceptable discomfort if they occur frequently enough. Therefore, to adequately assess comfort conditions the study should indicate what percentage of time these levels approaching the comfort threshold are exceeded, and during which seasons this will occur. 8

9. The report should define the word azimuth as used in this study. 9

10. The report states (page 4-1) that the free stream velocity in the tunnel is variable in the range of 0.3-10.7 mps. How are velocities higher than 10.7 mps obtained? What are Reynolds numbers? 10

11. The Shadow impacts are severe on Copley Place. The wind impacts could be cumulatively more severe. What is the seasonal distribution of wind impacts? The Final EIR should assess cumulatively the microclimatic (wind, shadow, temperature) impacts of the project on public enjoyment of Copley Square. 11

SJ:jc

STAFF REPORT

Review of "Pedestrian Wind Environment at Copley Place, Boston, Mass."  
Interim Status Report, Report No. 4415  
EOEA # 03074 June 1980

From : Stephen Kaiser, Principal Civil Engineer, EOEA/MEPA  
July 1980

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The Interim Status Report contains much useful detail. It can serve well as the basis for developing both general and specifically acceptable methodology for wind impacts from highrise development. The issue of wind impacts, especially on the pedestrian environment, is a very critical one for a traditionally windy, pedestrian-oriented city such as Boston, and is strongly linked to shadow effects as the most controversial results for the urban environment resulting from highrise buildings.

The Copley Place project has been admirably different in that preliminary architectural considerations have resulted in changes in building massing and shape at early stages, in order to minimize wind effects. Similarly, the Interim Status Report on wind is an important step in developing better quantitative and qualitative judgments relative to wind impacts.

Some highrise buildings have a history of producing major wind problems, esp. Prudential, Hancock and certain buildings along Beacon and State Streets, while others have lesser impacts on pedestrians. The important goal is to understand how the wind diversions are created and what architectural modifications are practical in terms of reducing the key downdraft effects.

The revised report is vastly improved over the draft version in terms of organization and clarity. However, a clearer explanation is needed of the step-by-step procedure for calibrating the model and indicating how the theoretical analysis is used together with empirical data to yield meaningful results from the wind tunnel testing. Emphasis should be on Definitions, Units, Theory and

probability, Criteria for Comfort/Discomfort, and Modeling Accuracy.

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## DEFINITIONS.....

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Many new terms and mathematical symbols are introduced and used in the report. A separate page of definitions and symbols should be provided, probably right after the summary. The layman will be aided in at least understanding some of the operations, and the moderately well-trained technician in a field other than wind-tunnel testing should be able to comprehend the analysis.

Definitions are needed for "wind gust," "effective gust" and "variable gustiness."  $V_{eff}$  is finally defined on page A-21, and it should be emphasized that the factor 1.5 is derived from comfort criteria, based on a 40-second assumed gust.  $\bar{V}$  and  $\bar{V}_{grad}$  are introduced on page A-11 without definition, nor is  $v'$  defined (A-13). A diagram would have helped to explain that  $V_{rms}$  is a variation around the mean velocity. What is "the RMS of turbulence" (A-21)? It may or may not be  $V_{rms}$ . Pressure gradient (p. 5) should be defined for the lay reader, and similarly if wind azimuth is effectively wind direction, the simpler terminology should be used. References to "stochastic nature" and Gaussian process" which are not followed up should be restricted to footnotes or explained. (A-13)

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## UNITS.....

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All units should be consistently presented; meters/sec. (mps) is OK, although most people are more familiar with miles per hour. The comfort criterion expressed on page B-5 shows good form, but the Beaufort Scales (p. 7 and B-3) show inconsistent and inaccurate units. All mps figures appear 50% too low. Are the "specifications" for wind impacts meant to refer to full velocity or to 80% velocity for pedestrian level impacts?

On page A-29, units are inconsistently presented for values of K and c, and Fig. A-17 should show the 'mps' units for c. Table 1, showing the critical study results, should include MPH figures as well as mps. The metric system/System Internationale is sufficiently

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confusing for the reader as things stand, and inconsistent presentation of units can create confusion among technicians and laymen alike. Of course, the twin unit confusion could be avoided by stating all velocities in terms of knots, which even the Metric Maniacs have been compelled to accept as part of the International System of Units.

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#### SUMMARY PROCESS.....

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In the report, the various elements of the analysis are presented in a rather fragmented context, without the purpose of each clearly stated. Is the following summary description of the study process accurate?

1. Build and calibrate the wind tunnel model, for power law boundary layer and turbulence.
2. Run tests and record measurements of  $V_{mean}$ ,  $V_{rms}$  for each wind direction and for  $V_{grad}$ .
3. Combine  $V_{mean}$  and  $V_{rms}$  to get  $V_{eff}$  as a function of wind direction and  $V_{grad}$ , assuming gusts of 40 second duration.
4. Statistically define  $V_{grad}$  and wind direction in terms of probabilities of exceedance, so that then  $V_{eff}$  can be calculated in terms of a probability of exceedance.

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#### WIND TUNNEL MODEL.....

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The model used is scaled down by a ratio of 1 : 382. What wind velocities are used in the tunnel to simulate actual full-scale wind velocities? Does the scaling process of the model have any significant effect on the type or magnitude of wind flows? How do Reynolds numbers, surface roughnesses, etc. compare between wind tunnel tests and full-scale Copley conditions?

How accurate is wind tunnel testing at estimating vortices at building corners? Some existing highrise buildings can produce

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low speed static "cyclones" of circulating air, paper debris and dirt. Are wind tunnel models sensitive enough to pick up such localized results?

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#### THEORY AND PROBABILITIES...

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The power law relationship specified on page A-11 of the report yields an exponent of 0.31 for local Copley conditions, but this assumption is different from the results for the wind tunnel (p. A-12) for which the exponent can be calculated to be about 0.24 for the curve shown. Depending upon which assumption is correct, the theory would tend to underestimate low-level winds (6-10 ft.) by 30%, or the wind tunnel would overestimate them by 40%.

The probability discussion at the top of page A-32 is very confusing. Should the three terms in the top equation be defined as follows :

"where  $P_i(a_{zi})$  is the probability that the wind will blow from azimuth  $i$ ,  $P(V)_i$  is the probability that, given the wind blows from azimuth  $i$ , the ground level wind speed will be greater than  $V$ , and  $P_i(V)$  is the probability that, for component  $i$  of the total wind azimuth spectrum, that the ground level wind speed will exceed  $V$ ." Thus the sum of all azimuths  $i$  from 1 through 16 will give the overall probability for any location that the wind speed  $V$  will be exceeded.

What is  $P_k(\cdot V_{mean})$ ? Should this term be  $P_i(V_{mean} \geq V_{conf})$ ?  
What is  $V_{gust}$ ??

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#### ASSESSMENT OF WIND EFFECTS...

\* \* \* \* \*

The undesirable nature of wind from large buildings is due to three factors :

- (1). the simple physical force exerted on people in walking, standing or sitting and doing generally relaxing things such as reading, talking, eating, etc.
- (2). the unpleasantness created by the dust, dirt and paper debris stirred up by high winds.

(3). the physical force of the wind on buildings, causing them to sway -- possibly creating motion sickness in upper stories, producing structural problems and in particular producing window breakage, which has safety implications for both building occupants and pedestrians below.

Most of the discussion of comfort criteria centers on factor (1) above, and detailed review occurs on the following pages.

The dirt issue has not been well analysed (apparently by anyone): it is probably at its relative worst -- for any given wind velocity -- in late Winter/Early Spring after long periods with no street sweeping, and on hot summer days when absence of rain allows urban particulates to build up on streets and sidewalks and when people's light clothing and greater likelihood of sweating makes a dirty environment more unpleasant. Clearly, there is a general need for more study of the technical and human issues of wind and dirt. How is entrapment of dust and particulates affected by wind speed, turbulence and size of particle? Since one of the major displeasures of walking in a high wind environment is the feeling of enduring a minor dust storm, one possible mitigating measure to reduce the overall wind impact is greater street and sidewalk cleaning (even if wind velocities are not reduced, the unpleasantness will be).

In terms of building forces, the Draft interim report noted on page 7 that there was a likely chance of "increasing the wind on the Hancock" building. Will this impact be such as to increase building motion and window problems?

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#### CRITERIA FOR COMFORT/DISCOMFORT....

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One of the tragedies of the ways we are rebuilding our modern cities is that we know more about the far side of the moon than we know about how human beings respond to wind gusts. Our definitions of "gusts" are not very good to start off with, and people have different responses to wind. Although 99% of us are pedestrians, there is no entity in Federal or State Government with responsibility

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for the pedestrian as a legitimate transportation function. The issue of pedestrian rights tends to arise only in the context of how much the pedestrian must suffer as the result of someone doing something else -- be it Right Turn on Red, a new highway or transit line, a bicycle path, or a major development such as Copley Place. The Interim Status Report is a useful attempt to define pedestrian comfort needs, and because many of the area pedestrians will be potential customers or employees of Copley Place, the project as a whole can benefit from the analysis. The provision of public funds (UDAG, Urban Systems, etc.) allows for a greater planning effort to improve pedestrian circulation conditions in the area than would have been possible for a purely privately funded project restricted to the site itself.

Variations in wind velocity can occur with both location and time. That is, one can walk from a steady wind at one location into a much higher or lower wind at another location, or stand at one location and be subject to variations in wind speed. The report uses the term "gust" to refer to the latter variation of wind speed with time, whereas some of the sharpest changes in wind speed can occur when walking past a building corner or alley. Sometimes, the common term "blast effect" is used to describe such a wind gradient in the horizontal direction. Also, when we talk about gusts, we should also be aware of two components -- the size and suddenness of the gust. For example, a hill also has two components -- height and steepness. Thus a small but sudden gust may be as uncomfortable as a larger but more gradual gust which gives more warning.

The report correctly notes that "A moderate wind speed with unpredictable high speed gusts is more unpleasant and more dangerous than a high steady wind." (p. 53) However, what evidence is there of human discomfort to wind accelerations (or more commonly, sudden changes in wind velocity)? Fluctuations of wind at a 3-6 second frequency require constant effort to maintain and adjust balance, whereas quicker variations will be too brief to take effect and more gradual increases allow for more adjustment time.

The report implies agreement with this concept, since "Several authors ... agree that the important gust duration is approximately three seconds." (p. B-6) Nevertheless, it appears that 40 seconds was selected as a suitable gust duration because it was easier to provide accurately modeled results. In other words, the report analyses what is easiest to measure, not what is most significant in terms of environmental impact. It might be better to sacrifice a little accuracy (as UnAmerican as that sounds) in order to perform evaluation in the most critical environmental area of impact.

How does human responsiveness to wind gusts vary between 3 and 40 second gusts? Apparently the studies have not been done. However,  $V_{eff}$  as defined and used in the report for a northeast wind (page A-21) is  $0.68 V_{grad}$  for a 40 second gust,  $0.78 V_{grad}$  for a 10-second gust and for a 3-second gust is  $0.84 V_{grad}$ . Therefore, the effective gust speeds are all different. The three-second gust that has the same probability of occurring as a 40-second gust has a wind speed 23% higher. How would people respond to such gust conditions? Maybe someone should run a test of different people in the wind tunnel itself (full scale), subject to time-varying speeds.

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The report is not consistent in its establishment and description of thresholds for wind gust safety or acceptability. For example :

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- In the draft report (but not the submitted report), the "threshold of danger" for a probability of 0.01 is stated to be approximately 13.6 mps or 30.3 MPH (p. 5).
- The modified Cohen criterion for 40-second gusts produces a pedestrian area "limit for safety" of 35.6 MPH. (B-8)
- On page 4, Table 1, the value of 13.6 mps is given as the speed "above which winds become generally unacceptable to pedestrians."
- "The velocity computed is 13.6 mps (30 MPH). Where this velocity is exceeded for more than 1% of the time, a location may be considered unacceptable by some users." (p. 6)
- "The limit suggested here is intended to represent the threshold of possible danger to frail or handicapped persons..." (p. 3)
- "...comfort velocity of 13.6 mps." (p. 10).
- Finally, on the Beaufort scales, if the acceptable wind velocity

(p. 4 &6) is defined as 13.6 mps (30 MPH), clearly at the pedestrian level, then the comparable range of wind velocities at this level is 25-31 MPH. Thus 30 MPH is near the upper range of "Moderate gale", not the borderline "strong breeze/moderate gale" designation mentioned on page 6.

So we have almost gale-force winds being described as everything from "threshold of danger" to "comfort velocity." We do indeed know more about the far side of the moon!!

Once we do decide on the level for and meaning of a wind velocity threshold, care must be taken not to make all impact assessments rigidly in terms of this threshold. It should not be inferred that an increase from 6 mps to 13.5 mps is "acceptable" while an increase from 13.5 to 13.7 mps is "unacceptable," or more significant an increase than the former increase. Both the increment and ultimate size of the effective wind gust need to be assessed in a fair evaluation of wind impact.

Whereas the report refers to a comfort velocity of 13.6 mps on page 3, the concept of  $V_{\text{conf}} = 3$  mps was introduced on page A-31. What is the physical and psychological significance of this term?

If we assume that gusts of 13.6 mps will cause considerable discomfort and danger at least for elderly, what are the implications for the vast expenditures of funds for the new Back Bay train and transit station to make them accessible to the elderly and handicapped? What data exists on elderly/handicapped mobility and wind speeds? If a person must use a cane to walk about, how does wind affect mobility? Similarly for wheelchairs, how does headwind velocity affect ease of wheelchair motion?

Table B.2 makes a good distinction between the various types of pedestrian environments However, the information presented is in terms of one-hour average wind speeds. For proper comparison,  $V_{\text{mean}}$  for probability of 0.01 should be presented in a table for key Copley locations. The criteria in Table B-4 refer to wind velocities in open plaza areas. How is Copley Square doing now? After development?

Many of the concerns expressed above reflect more on the state of the art and professional knowledge/responsibilities than

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they do on the specifics of the interim report. The report is correct in noting that "There is no rigid velocity-frequency relationship that can be used to define a limit of acceptability, because the perceived quality of a wind environment is subjective, and it varies with each individual." (pp. 6-8) Surely individuals vary, but people and their differences are a part of everyday life and are crucial to our everyday decisionmaking. If we wanted technically "clean" projects, we could go running off and take more pictures of the back side of the moon. Who needs it?

"Politics is more difficult than physics," said Einstein. So assessing human nature can be more challenging than distracting technocratic copouts. People respond differently to noise, pollution, nutrition, heat, cold, odors, etc., yet these are essential considerations in our awareness of environmental impacts. The Interim Status Report deals with a variable function of Nature, namely wind and effectively begins with almost 30,000 pieces of information which are eventually reduced to probabilities that certain things will happen. People's opinions and reactions are routinely handled in similar fashion through polls and voting. Possibly there is a way of describing a certain wind condition as creating an x% probability that people will respond unfavorably and a y% probability that people will respond very unfavorably. A certain amount of probability of wind difficulty is associated with the elderly and handicapped. When others are finding walking difficult, the elderly and handicapped are finding it impossible or very dangerous. Similarly, with shoppers and strollers, the reactions to wind will be stronger than those of the younger able-bodied pedestrian heading to work. With consideration of both wind and rain, able-bodied pedestrian will be severely affected -- if they seek to use umbrellas.

So there are several thresholds, with different implications and sensitivities for different subgroups of the general populace. One possible description would be :

- (a). "slight discomfort" : wind is noticeable; not pleasant but tolerable.
- (b). "moderate discomfort" : unpleasant, distracting; could be dangerous without vigilant attention. (icy) umbrella damage possible.

- (c). "severe discomfort" : very unpleasant; hold on to your hat; use of umbrella impossible; circulation may not be possible under icy conditions; conversation almost impossible; awkward to cross streets, because almost entire attention is on the wind. Dirt may be prevalent.
- (d). "Extreme discomfort." : travel is so bad that alternate routes may be sought; pedestrians will seek or receive aid from others (including the "human chain") Flying debris, possible flying glass; able-bodied people fall or hang on even with good traction.

The primary factor above is the force effect of the wind on people trying to walk. So how do we compare different situations and locations, the Build and the No-Build?

Table 1 of the Report implies that a simple listing of before and after gust velocities is the best measure, with implications for a percentage increase or decrease as a measure of significance, in addition to the 13.6 mps criterion. However, wind force is proportional to the square of the velocity, so that we should be properly comparing the percentage difference in wind force or difference in  $V^2$ . If this information is presented for selected data from Table 1, we can see the increased significance of the results :

LOCATION	$V^2$ difference (Build vs. No-Build)
1. Trinity Church	+ 30%
2. Copley Plaza Entrance	+ 3%
3. Boston Public Library	+ 18.5%
7. Prudential corner	+ 68%
8. Harcourt near Huntington	- 44%
9. Harcourt near tracks	+ 13%

The use of the  $V^2$  comparison achieves more validity in consideration of the next section on modeling accuracy, since there is less chance for error in comparing the same model in the same tunnel (with and without the project buildings) than there is going through the entire process to calculate a gust velocity for the future condition.

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MODELING ACCURACY.....  
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The key assumptions in developing the analysis should be listed and evaluated. These factors appear to be :

1. Statistical accuracy of the weather data (with almost 30,000 observations, the data should be better than the 35% figure mentioned in the report). Indeed, statistical analysis should tell us what the uncertainty is.
2. Proper modeling of the boundary layer for the Copley area, and accurate duplication of wind tunnel conditions; similarly for turbulence.
3. Ability of the 1:382 scale model to replicate full-scale conditions.
4. Linearity/consistency of wind tunnel measurements, including transcription accuracy of data and computer processing.
5. Definition and processing accuracy of  $V_{eff}$  (from  $V_{mean}$  and  $V_{rms}$ ) for each wind direction and speed.
6. Statistical processing of  $V_{eff}$ , with focus on probability of 0.01.
7. Comfort criteria : assessment of response to gusts and to wind gradients.

In terms of determining the actual wind speeds for build and no-build, errors in fundamental differences & technical limitations could creep in for factors (2), (3), (5)/(7) above, while processing errors would occur in cases of (4), (5) and (6).

In terms of comparing the percentage differences between build and no-build, many of the possible errors would tend to be balanced out as long as the tests are run consistently, and the errors are likely to be of the same order of magnitude as the ability of the test process to reproduce the same results upon repetition.

If, as noted on page B-7 and B-9, errors of + 100% can result for predictions when probabilities of 0.001 are considered, what are the errors for probabilities in the selected 0.01 range?

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## TECHNICAL DETAILS AND CLARIFICATION

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Page A-1, what is meant by Reynolds Numbers being  $6.2 \times 10^5$  per meter or  $1.9 \times 10^5$  per foot? The Reynolds Number is dimensionless, so that units should make no difference.

On page A-20, the Reynolds Number is more fully defined, yet is expressed as  $1.53 \times 10^5$  per foot.

p. 10. Clarify : "...the effects of the towers were well simulated when they were upstream of the proposed Copley Place."

p. 11. Description of Sensor 6 : part of a sentence appears to have been deleted.

p. 12. Sensor 1 :"The 2 to 3% increase in winds from the SSW and SW account for an increase in the frequency of high winds." However, at Trinity Church, the wind speed increase is 14%. Explain.

A-21. Explain : "Since small differences in the input percentages result in changes in output, the results of the computer algorithm require physical interpretation."

A-11. Two exponent designations,  $\alpha$  and  $x$ , for the same item.

A-12. Add designation of the horizontal axis,  $V(z)/V(z_0)$ .

A-13.  $z_0$  is introduced as a roughness length, but its approximate length is not given, and it is not clear how it relates to the modeling/testing process. Figure A.9 showing experimental results shows the correlation with height  $z/z_{grad}$ , not  $z_0$ .

Because the wind roses Fig. A-14 to A-16 are presented slightly differently from traditional wind roses, some explanation should be in order, including notation that  $V_{grad}$  is presented, with better labeling of the wind speed circles and their units.

A-20. "discretization" : please finalize the explanation of this word.

A-21. explain : "Since small differences in the input percentages result in changes in output, the results of the computer algorithm require physical interpretation."

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A-23. Explain : "For seasonal and annual data bases, the matrices of observations for azimuths and velocity ranges are combined from each of the three summaries."

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A-28. What does it mean that  $\sigma$  is a "characteristic of the parent population"? The symbol is then not mentioned again. For the Weibull equation, which is followed up and used, the speed "c" is not defined, nor the exponent "k". Also, type :  $k_{LnV} = k_{LnC}$  should be  $k_{LnV} - k_{LnC}$ .

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B-1. Explain : "In addition, the greater the attraction of a place, the less important the wind environment becomes as a factor."

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B-4. "As stated in Sec. A.2.5.3, a factor  $C(t) = 1.5$  is consistent with an averaging time of 40 seconds." Where?

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RESULTS.....

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Page 3 should be expanded or added to to show sensor locations at Copley Square. The sensor locations should be listed in Table 1, and if possible the direction of wind/season of the most significant wind effects for each location. Why were there no measures of existing conditions for locations 15-20?

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The description of wind flows (page 3 of the draft report) is very useful, but is there any way to clarify the results by using graphics -- either a plan view of the model or isometric view, showing major vertical and horizontal flows, as well as vortex areas?

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MITIGATION.....

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The report suggests that potential mitigation measures might include an awning or canopy of some sort above the pedestrian level. Also dense sidewalk tree planting is suggested.

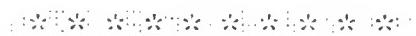
How much of the downdraft problem is caused by sharp-edged

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buildings (without rounded edges)? Do smooth-faced buildings contribute to easier downwash effects? If so, can building surfaces be roughened in the vertical direction, and how much is this potential limited by the requirements for window washing machines?

Are there possible ways of generating above ground turbulence to minimize Bernoulli effects of high speed winds, with decreased pressure and thus worsened vertical pressure gradient? Is there a possibility of using fluidic techniques to reduce downwash effects, such as piping some of the high level, high pressure air down to a canopy level, then to be expelled perpendicular to the building surface. The intent is to generate pockets of turbulence above the sidewalk level. How else might buildings be inverse-streamlined in the vertical direction to minimize downwash effects?

How effective might trees and planting areas be at both breaking up high velocity winds and also filtering out dust/air pollution, and in the case of grass absorbing dirt directly?





The  
Neighborhood Association  
of the Back Bay

315 Dartmouth Street  
Boston, Massachusetts 02116  
247-3961

March 25, 1980

Mr. Richard B. Mertens  
Environmental Review Officer  
Boston Redevelopment Authority  
Boston, MA 02201

Dear Mr. Mertens:

Enclosed are the comments of The Neighborhood Association of the Back Bay on the Draft Environmental Impact Report Supplement/Draft Environmental Impact Statement, Copley Place, Boston, MA.

While we have raised several issues regarding the environmental impact of the project and suggest further evaluation of some of these issues, we wish to emphasize that we find the current proposal of the developer satisfactory and believe that it would make a positive contribution to the Back Bay.

The difficulties that we foresee can and should be alleviated by direct actions on the issues involved (e.g., traffic control modifications); the project itself should be allowed to proceed as soon as these modifications are in place.

Very truly yours,

NEIGHBORHOOD ASSOCIATION  
OF THE BACK BAY

By Warren A. Johnson/mr  
Warren A. Johnson, Chairman  
Development Committee

cc: Mayor Kevin H. White  
Christopher Iannella, President City Council  
John Driscoll, Director MTA  
Rep. Melvin King  
Rep. Barney Frank  
Katherine Kane, Deputy Dayor  
Robert Ryan, Director BRA  
Emily Lloyd, Traffic Commissioner  
Tunney Lee, Citizens Review Committee  
Urban Investment & Development Co.  
Stuart Robbins, Back Bay Association  
NABB Development Committee



# The Neighborhood Association of the Back Bay

315 Dartmouth Street  
Boston, Massachusetts 02116  
247-3961

March 20, 1980

Mr. Richards B. Mertens  
Environmental Review Officer  
Boston Redevelopment Authority  
Boston City Hall  
One City Hall Square  
Boston, MA 02201

Dear Mr. Mertens:

Re: Draft Environmental Impact Report Supplement/Draft Environmental Impact Statement, Copley Place, Boston, MA

This letter presents the official response and comments of the Neighborhood Association of the Back Bay on the Draft Environmental Impact Report Supplement (EIR)/Draft Environmental Impact Statement (EIS) dated February 15, 1980, for the Copley Place project in Boston, Massachusetts. These comments should be read in conjunction with our comments of December 6, 1978, on the original EIR submitted October 31, 1978.

In general, the supplementary EIR is a major improvement on the original draft presented over a year ago. The level and scope of analysis has been revised and we feel is reasonably complete and makes appropriate assumptions in developing the basic data.

Several environmental issues remain unresolved, however. While the basic data does draw a reasonably accurate picture, these data show serious environmental problems for the Back Bay and suggest the need for further analysis of the conditions in order to determine suitable ameliorative actions. These areas are: traffic, parking, air quality, and wind.

## Traffic

Since the inception of the Copley Place planning process, we have expressed concern about the impact of the project on traffic flows in the Back Bay. We are delighted to find that the EIR/EIS now recognizes that there is indeed, a problem. We still believe, however, that insufficient attention has been given to these difficulties and that further consideration to alleviating these problems is needed.

The problem is magnified by the text of the traffic analysis. A significant problem is the routes to and access points at Storrow Drive. While the base data suggest severe traffic tie-ups in the Bak Bay, the analysis states that "It is likely that many commuters between the north sector [of the metropolitan area] and the Back Bay will be attracted to transit, resulting in reductions in traffic volumes on Berkeley Street and other access routes to Storrow Drive." This assumption lacks substantiation and is, we believe, erroneous. An equally valid assumption, representing the same worst case approach taken in most of the report, is that demand for traffic access to Storrow Drive will not slacken and that other routes will have to be found. Assuming that traffic volume directed toward Storrow Drive and points west will attempt to reach the westbound lanes at the next nearest entrance, then traffic from Copley Place will distribute itself on Back Bay streets enroute to the Charlesgate interchange at the western end of the Back Bay. While the bottleneck at Berkeley Street may be reduced sufficiently so that traffic will move somewhat, traffic on other streets may well increase, resulting in a reduction in the level of service at more Back Bay intersections.

Traffic in the Back Bay is already a major problem. The grid nature of the streets ensures that a major tie-up at one intersection will be quickly transmitted throughout the entire neighborhood. Congestion at Berkeley Street will quickly spread to other streets with increases in exhaust emissions and congestion through extensive parts of the neighborhood. Mitigating steps should be taken to lighten this traffic load and to protect the residential area from further inundation with traffic.

We agree that every major effort should be made to encourage employees at the project to use public transit. The range of methods to accomplish that end is broad and some combination of methods should be considered. Little attention has been paid to date, however, on means to encourage casual visitors and shoppers to use transit. The retail analysis suggests that Copley Place will attract a high income clientele that is unlikely to forsake their cars if they come. If the retail facility is successful, and we believe that it will be, then the potential overload of cars could be quite large. This issue must be addressed in greater detail.

### Parking

A companion issue to traffic is parking availability. The EIR/EIS shows that there is a shortfall of parking that ranges from 290 to 494 spaces depending on the modal split assumptions used. The 290 figure comes from using a different set of modal split assumptions than those agreed upon by the participants in the review process; we believe that its inclusion in this report is a serious error and constitutes a breach of agreement which NABB negotiated with the consultants in good faith. The only valid number for these purposes is the 494 shortfall projected by the modal split analysis.

1

2

3

The shortfall of 494 spaces must be accommodated in nearby garages, which are already operating at capacity, or on local streets. There are, of course, no extra spaces on local streets. Furthermore, we consider the assumptions behind this analysis quite optimistic. The analysis forecasts only an average level of success for the project and assumes that the parking provided for retail usage will be adequate for average needs. During any days when retail usage is greater (and those days are both predictable and likely) further excess demand for parking will be created.

Other proposed developments in the Back Bay will also have an adverse effect on the traffic and parking picture. The proposed expansion of Hynes Auditorium, the new Sage Hotel on Dalton Street, and Park Plaza, are likely to impose increased adverse parking impacts on existing Back Bay parking facilities and street parking. At times when events drawing large drive-in crowds to Hynes Auditorium and heavy shopping traffic coincide, the burden of traffic and demand for parking in excess of spaces available will be severe.

There are numerous mitigating devices that could be used to combat this excess parking demand. The most important, however, is an enforced residents-only parking program for the surrounding neighborhoods. NABB has proposed such a program for the Back Bay; to date, the City has taken only limited action to implement such a program. We believe that the impact of construction worker parking will be equally as severe as the finished project, and therefore insist that construction not begin until a residents-only parking program is in place in the Back Bay.

#### Air Quality

In general, we believe that the air quality section of the EIR/EIS represents a satisfactory analysis of the situation. However, it should be noted that much of the area presently exceeds, by a substantial margin, the limitations for 8 hour CO concentration. As shown in table 6.6-3, receptors 1, 3, 5, 7, 8 and 11 were over the 9 ppm standard for this area; this constitutes over 55% of the locations measured. Two locations are very close to exceeding the standard under the modeled conditions in 1983. If traffic increases as we outlined above, then 8 hour standards could easily be exceeded at receptor 11 (Commonwealth Avenue between Hereford Street and Massachusetts Avenue) and receptor 8 (near the Lenox Hotel). This difficulty suggests that more effective means must be found for reducing the traffic and parking problem which would have a mitigating effect on air quality problems.

Wind

The study of wind effects is inadequate for two different reasons. First, no wind tunnel studies have been carried out. The report states that such studies will be carried out when final designs have been reached. The results of such studies should be considered before approval for the project is given.

(6)

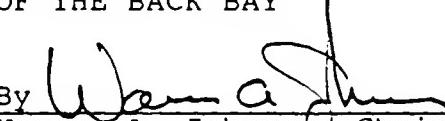
A further problem is the delineation of impacted areas. The consultants assume that only the immediately adjacent pedestrian areas will be affected. Wind factors extend much further, however, as experience with the John Hancock building amply demonstrates; the wind tunnel effect on Clarendon Street extends all the way to Commonwealth Avenue on a winter day. Further, the potential for combination impacts between the Hancock building and Copley Place, has not been measured. Consequently, we believe that this section should be enlarged substantially to consider areas further away from the direct site and to include wind tunnel tests of the design.

Conclusion

We wish to emphasize the importance of proper assessment of the impacts of traffic in the Back Bay. The assumptions used are not unduly optimistic, but the analysis fails to deal with the high probability of substantial traffic increases throughout the community. These problems must be addressed adequately and measures to mitigate harm must be studied thoroughly before the project is allowed to proceed.

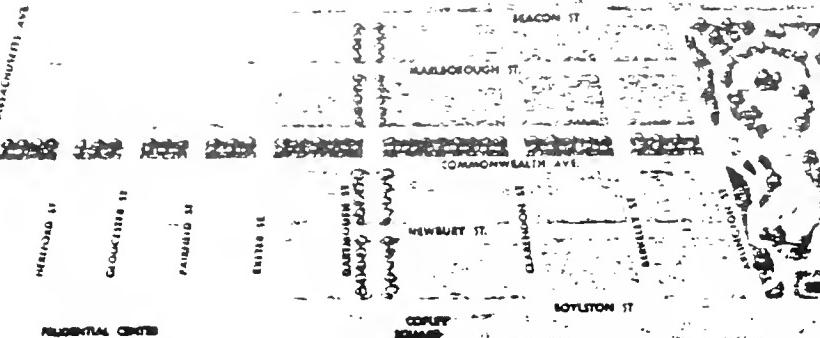
Very truly yours,

NEIGHBORHOOD ASSOCIATION  
OF THE BACK BAY

By   
Warren A. Johnson, Chairman  
Development Committee

The  
Neighborhood Association  
of the Back Bay

315 Dartmouth Street  
Boston, Massachusetts 02116  
247-3961



12/6/78

Dr. Evelyn F. Murphy, Secretary  
Executive Office of Environmental Affairs  
Leverett Saltonstall Building  
100 Cambridge Street  
Boston, Ma. 02202

Re: Preliminary Environmental Impact Report (EIR) for Copley Place Project as prepared by Environmental Research and Technology (ERT)

Dear Secretary Murphy,

Enclosed please find a report with attachments from our committee assigned to review the EIR of Copley Place Project. This Committee has labored under a very tight time table and unfortunately volunteer citizen groups, such as ourselves do not have the manpower, funds, expertise or consultants to produce a more polished document.

Because of the time restrictions we feel that an adequate examination of the issues is impossible. We look forward to a more detailed examination of the issues in the months to come.

The enclosed is as follows:

- I Report drawn up by N.A.B.B./Copley Place Project Committee  
II Attached Documents

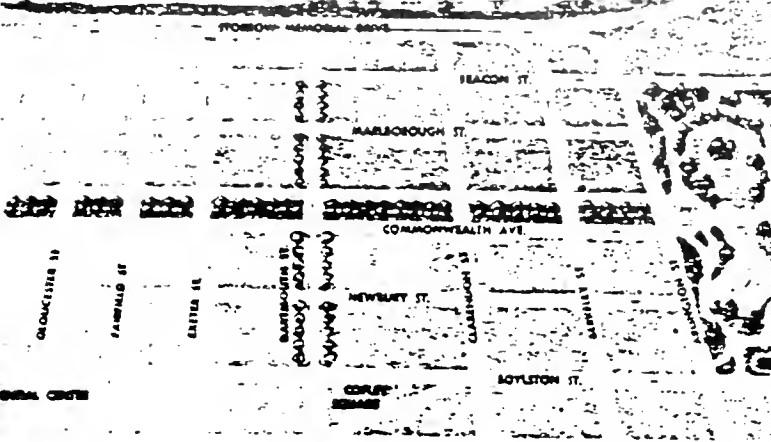
- A. Traffic
- B. Air Quality
- C. Wind
- D. Shadows
- E. Noise

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Elliott Laffer, Vice President  
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Mary V. Mullen  
Susan O. Prindle  
Norma Strawbridge



The  
Neighborhood Association  
of the Back Bay

315 Dartmouth Street  
Boston, Massachusetts 02116  
247-3961

F. Comments by Douglas W. Dockery

G. Accompanying Letters

1. Walter Koltun to Ken Himmel
2. Walter Koltun to Frank Keefe
3. Mark Waltch, Consultant for N.A.B.B. to Frank Keefe
4. Richard Nemrow to Governor Dukakis

We feel that the present proposal is dangerously large. In our letter to the Governor we asked that a maximum figure of 550,000 sq. ft. net rental for department stores, mall shops, restaurants, etc. be included as part of the lease. This figure represents: 647,000 sq. ft. (asked for by the developer) minus the sports complex of approximately 33,000 sq. ft. and minus 10% as referred to in the E.I.R. scope.

It is our hope that this report and your input will help to produce a final E.I.R. that will allow a "reasonable sized" project, one with the least environmental impact to our neighborhoods.

Sincerely,

THE NEIGHBORHOOD ASSOCIATION OF THE BACK BAY

*Richard Nemrow*

Richard Nemrow  
President

Richard M. Nemrow, President  
Elliott Laffer, Vice President  
Judith H. Porteus, Vice President  
Manan B. Ullman, Vice President  
Mildred Rothstein, Secretary  
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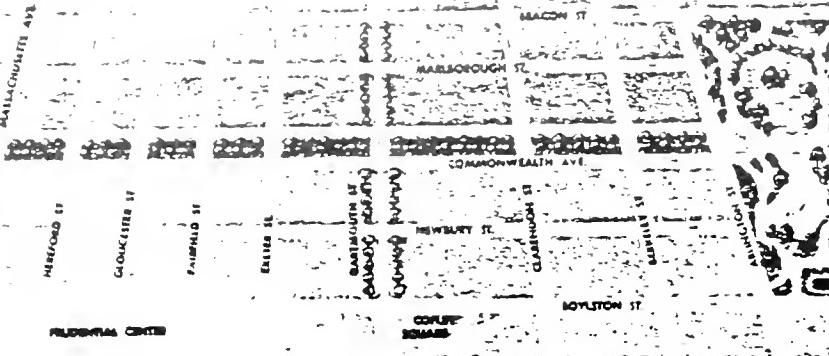
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CC:

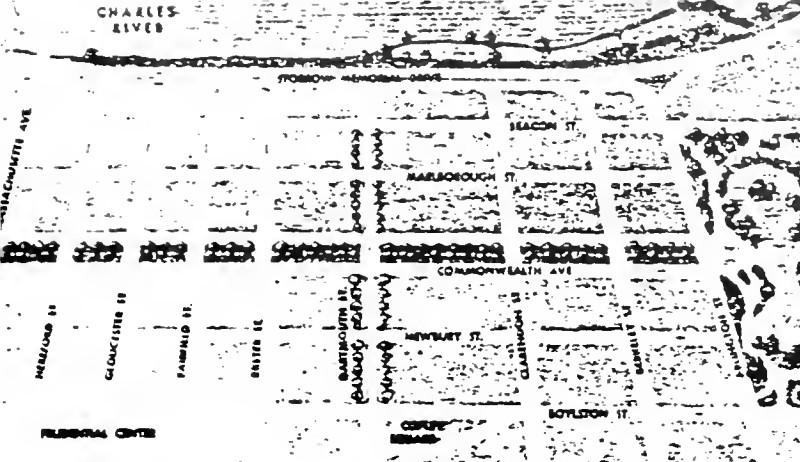
Secretary of State Planning Frank Keefe  
Representative Barney Frank  
Ken Himmel, U.I.D.C.  
Mark R. Waltch, Consultant  
Bob Ryan, B.R.A.  
Walter Koltun, Chairman N.A.B.B. Committee  
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The  
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315 Dartmouth Street  
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12/6/78

Dr. Evelyn F. Murphy, Secretary  
Executive Office of Environmental Affairs  
Leverett Saltonstall Building  
100 Cambridge Street  
Boston, Ma. 02202

Re: Preliminary Environmental Impact Report (EIR) for Copley Place Project as prepared by Environmental Research and Technology (ERT)

Dear Secretary Murphy:

I am writing on behalf of the Neighborhood Association of the Back Bay to express our concerns about the proposed Copley Place Project and to respond to the Draft Environmental Impact Report (EIR).

At the outset we wish to state that the project, as currently proposed and designed, is unacceptable to the Neighborhood Association. It reflects a fundamental contradiction between urban life, which is interactive, and suburban-like, automobile-oriented shopping mall that is designed to be self sufficient. This concept shows no need to interact with the surrounding communities and consequently does not. The current design, with its enclosed structure, its fortress-like quality and the lack of open public spaces are not in keeping with the surrounding neighborhoods and the City as a whole. Neighborhoods should be brought together, not divided.

THE PROJECT IS TOO LARGE PHYSICALLY - the proposed retail space is almost twice the size as that initially proposed in

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the guidelines of September 22, 1977. Attached papers, which are part of our report will show that the project is "too large" from an environmental point of view.

The EIR itself is grossly deficient and short in its scope, Considering the large uncertainty surrounding the forecasts, it seems that the line between tolerable conditions and disaster is very thin. Uncertainty is practically built into every number estimated, and assumptions are continually being built upon other assumptions, thus leading to an exponential propagation of errors and more uncertainties. The problem becomes more serious when you consider that all these assumptions systematically reduce the negative impact that could result from the project. This is particularly true of traffic, parking and air quality.

We also question much of the information contained in the EIR, its authenticity and accuracy, where it was obtained from and when. e.g. In the "Summery Sheet" 4.14 page 4 - 11 under Open Space and Recreation it states, "During the winter months, the Prudential operates a small skating rink at the south face of the tower," when in fact, this rink has not operated for 4 - 5 years.

The following five points focus mainly with alleged allegations made by the developer:

1. The EIR (Report) makes only the most favorable assumptions and uses only the most favorable data. For example, it estimates 17,000 retail shoppers daily. Urban Investment and Development Co. used this number in a July 20, 1978 Economic Impact Analysis Report which it prepared when the program called for 588,000 sq. ft. of leasable space. It continues to use this number although the net leasable space has grown to 763,000 sq. ft. an increase of 30%. Accordingly, the number of daily shoppers is more likely to be about 23,000. This number is critical, for it is the basis of estimating the number of additional cars coming into the City and the Back Bay.
2. The Report contains erroneous information. For example, it assumes that 30% of the shoppers will come by automobile. This is based on a Newbury Street survey recently completed by the S.R.A. Thirty percent of 17,000 is 5,100, not the 4,000 used in the report. Moreover, thirty percent of 23,000 is 6,900 people

which is almost twice that estimated in the report, and therefore twice the number of cars.

3. Conclusions are drawn which give the impression of high reliability when in fact, the data are so uncertain that ranges should have been used rather than single numbers. For example, this high quality retail complex is intended to cater to those in the wealthy suburbs. This might raise the Newbury Street figure of 30% cited above to 40% or more.
4. Conclusions are drawn from averages rather than from the high-low estimates that will be encountered. If an average of 23,000 shoppers come daily, then some days, weeks and months will have more shoppers than others. A stock market report not only shows the ending figures, but also the high and low of the day. The high estimate could be considerably above the average.
5. In important areas the scope of this report is too narrowly drawn and this leads to limited and erroneous conclusions. For example, the traffic effects were limited to the streets adjacent to the site and did not include the impacts on Arlington, Clarendon, and Berkeley Streets, which are main exits and entries through our neighborhood to Storrow Drive. Storrow Drive itself, and Massachusetts Avenue, all of which will be severely impacted were not included in this report. On page E 13, and elsewhere it states that the local street systems are not "overtaxed". This is an erroneous statement. The current overcrowding of the above streets was confirmed by the B.R.A. during the Park Plaza hearings and current figures of the developer shows many streets and intersections to have a "D" rating now.

The remainder of this letter is concerned with the negative environmental impacts themselves, which, because of the excessive size of the proposed project, outweigh the positive impacts. The attached sections show in detail some of these problems.

- A. Traffic. The scope of the EIR is too limited and must be extended. The number of additional automobiles is incorrect and is likely to be twice the level estimated. The additional traffic will be superimposed on an already fragile system that is at or near capacity. This is only one of several developments projected in the near future in the area (e.g. Park Plaza, Hynes Auditorium expansion, Prudential Center expansion, etc. all of which will

have added impact. The situation is made worse because of the shortfall of parking space, which will cause cars to cruise the neighborhoods looking for space. The Report shows a shortage of parking for construction workers. It also shows that the new Orange Line will not be finished until sometime in 1985. The study was also done in August, a vacation month.

- B. Air Quality. The EIR is inadequate in this area due to the small number of actual measurements used and their location. We believe that additional data should be gathered in order to properly measure the impact on surrounding residential neighborhoods. In particular, wind tunnel studies are needed to measure the dispersal of pollutants from the Mass. Turnpike venting system that has been proposed.
- C. Wind. This subject is given minor treatment in the EIR because of incomplete information. As noted on page 6-165, "it is quite probable that wind speeds at the project site exceed the criteria . . . We believe that phase II wind tests should be required before approval for the project is given.
- D. Shadows and Visual Impact. The impact of the hotel tower on Copley Square is significant. The square will be walled from sunlight all day during the winter months. The impact of the hotel will occur during the afternoon. In addition, the location of the tower on Stuart Street increases its visual impact and tends to wall in the square. The original position of this tower on Huntington Avenue was preferable.
- E. Noise. The potential noise impact of the project has not been expressed in adequate detail. The measurement of sound levels and the assumptions about noise impact have been made to minimize their negative values. Data were collected in August, a quiet time of the year, and did not include rush hours. As a consequence, we lack confidence in the conclusions of the study and believe that more appropriate measurement is needed.
- F. Air Quality. This section consists of an analysis of the EIR prepared for us by Prof. Douglas Dockery of the Harvard School of Public Health.
- G. Previous Statements. This section provides copies of previous statements by the Neighborhood Association of the Back Bay regarding the project.

We have no comments to make on the public service or the ecology/hydrology sections of the EIR.

In conclusion, we wish to emphasize that many of the more significant negative environmental impacts would be alleviated or least controlled if the project were smaller. The size proposed by the CRC guidelines of September 1977 is appropriate in this respect. From the inception of the CRC and especially from the time that the developer changed the September 1977 guidelines, we have been concerned over the size question. Refer to material and letters attached in section G. Despite our consistent protestations, these problems remain ignored. As the project has grown, the impacts have increased. While early we had problems identifying size, we now feel confident that a maximum sz. ft. lid can be put on the project. Refer to section Governor's letter.

We hope that this additional information will aid you in assessment of the preliminary EIR.

Very truly yours,

Walter S. Koltun, Chairman N.A.B.B.  
Copley Place  
Committee

Marian Ullman, Committee  
Warren Johnson, Committee  
Mildred Rothstein, Committee  
Elliot Laffer, Committee

There are serious deficiencies in the Traffic Section of the EIR. The analysis makes exceedingly conservative assumptions and does not allow for a "worst case" or even a "worse case study." Our specific concerns about the report are detailed in the sections below.

It should be noted that we are focusing our attention on the operational impacts of the project. We are equally disappointed, however, with the construction impacts evaluation section which is very inconclusive. The analysis is too qualitative in nature and assumes "prudent" scheduling of trucks serving the construction site (p. 6-43) and that construction workers will not travel at peak hours. Both these factors are based on "hope" and do not take into consideration the special character and traffic patterns of Back Bay and South End.

#### Scope and Level of Analysis

1. Level of analysis is too localized and it is wrong to assume that the impacts of such a major undertaking in an already congested urban core will be limited to the adjacent streets. Additional traffic generated by the proposed new complex could very well badly tax access facilities (not included in this study) which already suffer high levels of congestion both during peak and off-peak hours. A more thorough analysis of systemwide effects is needed.

2. Some crucial elements in the analysis are very quickly treated and inconclusively supported (e.g., modal split analysis) while others are "beaten to death" (e.g., need for more parking).

3. There is no basis to assume that percentage walk trips would be 40% for the new complex. The fact that such split has been observed on a certain day in the Newbury Street shopping area simply does not provide enough justification for the assumption made in this study. For instance, Newbury Street's unique shopping and recreational atmosphere, its greater pedestrian accessibility, as well as the specific conditions of the survey, could account for such a number.

4. The report admits that significant changes to local circulation will result from the new development. For instance, most intersections in the immediate vicinity will be operating at level of service D, assuming that all the study estimates and forecasts are reliable (and keeping in mind that for the most part they are very optimistic in terms of negative impacts and tend to make things better than they really are).

Definition of level of service D (as per Appendix J) is that it approaches unstable flow, with tolerable operating speeds being maintained though considerably affected by

changes in operating conditions. Fluctuations volume and temporary restrictions to flow may cause substantial drops in operating speeds.

Consistent with the above definition, it seems that level of service at most of the adjacent intersections is highly sensitive to very small fluctuations or changes in the projected volumes. The line between tolerable conditions and a disaster is very thin.

5. A fundamental question arises as to the selection of the design hourly volume. In the report, only A.M. peak period was considered and a great deal of traffic was dismissed on the basis that it did not contribute to peak hour traffic (e.g., truck traffic, p. 6-48). The P.M. peak period was eventually discussed after a complaint was voiced to that effect. Typically, only new project employees were added to these peak-hour volumes (as well as some truck deliveries). However, a simple look at the existing traffic patterns at the intersections under study can be very revealing. For instance, for the Huntington Avenue and Exeter Street intersection, as well as for the Dartmouth and St. James Streets intersection, traffic counts show that substantial levels of traffic persist throughout the day. Considering the relative number of estimated vehicle trips generated by shoppers when compared to the vehicle trips generated by

employees, it might very well be that traffic during the so-called off-peak could present even more problems than the peak period traffic.

6. The number of projected shoppers' vehicle trips is approximately 5-10 times that of projected employee trips. There certainly is not 10 times excess capacity present during the off-peak periods than during peak periods. The ratio is more in an order of magnitude between 1 and 2. Of course the shopping trips are spread over a longer period, but that still might not reduce the apparent mismatch between supply and demand. The problem is compounded when one considers that most of the truck delivery trips will be added to the traffic during that period and that shoppers would typically be aggressive in terms of looking for on-street parking, which implies a greater amount of circuitry (until parking space is found or until he gives up and decided to go to a more expensive garage).

7. Capacities were calculated using questionable assumptions which would result in capacities greater than the actual or reasonable ones; e.g., percent of trucks was not carefully evaluated in light of the new truck traffic generated. Moreover, trucks are getting larger which makes them more of an impedance to capacity than they were in the early 1960s

(when the data used to come up with all the correction factors in the Highway Capacity Manual was collected). Local bus factor was too easily dismissed. New routes might exist in the future to serve the new complex and that would reduce parking capacity conditions significantly.

#### CTPS Traffic Projections

1. Trip generation rates are known to exhibit a great deal of variation between urban areas, especially for the central cores of large urban areas which present unique characteristics. Trip generation rates used in the study are taken to be "God-given", and the subsequent analysis does not recognize the fact that these rates are by no means fixed, and does not deal with their limitations. Instead of looking at mean value, an upper bound and a lower bound should be considered in order to get a better idea as to the possible impacts on the street system. As explained earlier, considering that the predicted traffic situation is barely acceptable, the sensitivity of the impacts to the value of these trip generation rates can have very serious implications. Moreover, a comparison with other figures widely reported in the technical literature suggests that the rates used by the study are more on the low side and absolutely no "safety factor" is provided as protection against such uncertainty.

The same comments apply to all the rates and percentages used in the CTPS traffic projection. These rates and percentages are by no means "standard" and established and foolproof; all the manuals and textbooks describing them make a point of warning the users that local conditions can play a tremendous role. Considering that we are already at the borderline in terms of acceptability of the impacts, the attitude should be towards more protection and more conservatism in developing projections.

2. Another important assumption is that of the modal split rates. Granted, everything is rationalized; however, studies in travel demand modeling show that the mode choice process depends on many factors, such as, the characteristics of the users (socio-economic and the like, whereas the rich would tend to drive rather than ride transit, etc.) or the characteristics of the transportation system.

There is nothing wrong with using existing data in the city under study; however, a more careful evaluation is needed, especially one which would capture the trade-offs facing the trip makers that are at play in this case. Moreover, since projections are for 1995, it seems that long range factors should be taken into consideration. It cannot be assumed that Boston's modal split will remain unchanged between now and then and that the same people would walk to shop or work, etc.

## Conclusion

There is a definite need for a finer evaluation which would consider a range of possible sets of projections as opposed to one fixed projection. If one set of projections is to constitute the basis for design and evaluation, then it should definitely not be the one proposed in this study. Instead a more conservative and realistic one should be developed in order to offer the needed protection against the high sensitivity of the conclusion (and its cost to both the developers and the community) to those projections. As it stands, the predicted impacts are in a "critical zone." Moreover, considering the systematic bias of the assumptions and the accumulation of biases that would result in non-negative impacts, it could very well be that with more realistic assumptions, a totally different conclusion would be reached.

S. Air quality

The impact of Copley Place on air quality in Back Bay, according to the Environmental Impact Report, is based on the results of venting automobile emissions from the to-be-covered portion of the Mass Turnpike and on three fundamental assumptions: 1) the estimated average number of persons expected to come to the site per day, 2) the number estimated to come by automobile and 3) the effect which this number of cars will have in 1983 on traffic volume, speed and level of service, as well as parking availability and shortfall.

The method used for arriving at the predicted levels of air quality components is based upon a four-day monitoring in the month of September at the site and figures from the monitoring station in Kenmore Square which have been factored into a mathematical model. Temperature, wind speed, etc., have been introduced into the model to arrive at a "worst case condition." On page 4-84 it is stated, ". . . the validity of any comparison between the modeled results and monitored data is, at best, highly questionable." Modeling, admittedly, is an art and not a science; the margin for error is great. Granted that the state of the art is the best available, we have less than total confidence in the process, based as it is on assumptions and theory. The Back Bay residential community is, indeed, uneasy about the possible significant degradation of air quality in general and at certain specific locations in particular.

In addition to the concerns raised in these comments, we have also received an analysis of the statement by Prof. Douglas Dockery of considerable interest to us and we have attached a copy of his report (See section F). The following parts of this section are devoted to a more detailed discussion of the issues that concern us directly.

#### C) MONITORING AT CRITICAL RECEPTORS

Newbury Street, between Dartmouth and Exeter, selected for critical receptor 5 (see page 6-11) is, in our opinion, neither an average block nor does it reflect the anticipated increase in traffic volume and decrease in level of service on certain other streets. Also, the average height of building in this block is not 30 ft., as stated, but

ranges from 90 to probably 40 ft. A new seven-story building is under construction at the corner of Exeter St.

We agree that Newbury Street will not feel the direct impact of increased traffic due to Copley Place, but it is likely to suffer some increase from cars cruising to find an on-street parking space. The study of retail shopping on Boylston and Newbury Streets by the BRA in 1978 indicates that 60% of those shoppers arriving by car parked on the street. Since parking all through the Back Bay is tight, this means that cars cruise until a car leaving a space is spotted.

It is not clear whether cruising to find on-street parking has been taken into account, especially in the light of the scheduled high parking fees.

It is also unclear whether anticipated increase in traffic volume by 1983 was factored into the model for Receptor 5 results as stated in Figure 6.1-3

We are not told what the present carbon monoxide levels are at Receptor 5 and are, therefore, unable to make a comparison between now and 1983 when Copley Place will be built. We assume that it will be less than the 81% increase under the "current" plan versus no-build.

We would like to know the site-specific results of other pollutants at Receptor 5.

#### Other Monitoring Possibilities

Since we are largely a residential and commercial community in low-rise buildings, we would like to know more about pollutant levels at heights other than street level, say, 20 to 30 ft. high especially over the 3-hour period.

Since nearly all the evening peak-hour traffic going north and to Logan Airport will use Berkeley Street to reach Storrow Drive, we recommend monitoring in this part of Back Bay, possibly on Berkeley Street between Marlborough and Beacon Streets at an average residential level.

#### Mass. Turnpike Venting System

An area of particular concern is the venting of exhaust emissions from the Mass. Turnpike. The importance of this system cannot be understated: The determination of the EIR is that such a system will provide the necessary improvement in local air quality to eliminate negative

### 3. Air Quality

impacts on the vicinity of the project. The impact of the shaft, however, is to disburse the pollutants to the surrounding neighborhoods. When this issue is considered in tandem with the inadequacy of measurement in surrounding residential areas noted above, the difficulties of these calculations mount rapidly. We believe that there is not enough data to evaluate the full impact of the adequacy of the ventilation shaft proposal. In addition, the impact on surrounding neighborhoods could be substantial if the height or position of the shaft has to be altered.

Two additional concerns relate to the prevailing winds in the area. In the summer, the wind is from the southwest; what is the air quality impact on the hotel during that time period. In the winter, the prevailing wind is from the northwest; why was no receptor placed in the southeast quadrant in view of these winds?

### Conclusion

We are pleased to note the statement on p. 8-8 that "limitations of analytical modeling of pollutant dispersion for complex geometries are such that critical results should be cross-checked by wind tunnel testing." We urge that wind tunnel testing and further monitoring be made a condition for approval of the project. While we recognize that modeling to date shows a greater impact on the Back Bay from vented emissions from the Mass. Turnpike than from the projected increase in traffic volume and decrease in level of service, nevertheless we would like to look at conclusions based on a range of traffic estimations and actual site monitoring over a longer period of time rather than one set of estimated predictions which may turn out to be far from what actually develops.

C. WIND

Evaluating the impact of wind is difficult because information is incomplete and no serious testing has been done. The phase I testing which has been completed acknowledges a problem but discounts effect without any supporting evidence. Although further testing is planned in Phases II and III, only remedial action can be taken. As pointed out on page 6-165 "it is quite probable that wind-speeds at the project site exceed the criteria expressed in Table 6.5-1 (Suggested standards for one-hour-average wind speeds and permitted frequency of occurrence)."

Our conclusion is that phase II wind tests should be required before approval is given for the project.

#### D. SHADOWS

The shadow cast by the hotel in the winter months on Copley Square is a major concern to the Neighborhood Association of the Back Bay. During the winter, the Square is in shadow all morning from the John Hancock Tower and will be in shadow all afternoon once the hotel is built. Snow and ice will not melt, thus rendering the Square virtually impassable. Little or no sun will make Copley Square like Rittenhouse Square in Philadelphia, a dark area unused where almost nothing will grow well.

The developer claims that the hotel tower was relocated to reduce shadows on the Library, but we see no evidence of this. The location of the tower along Huntington Avenue was more aesthetically pleasing than along Stuart Street and is preferred by the Association. The visual impact of the tower in its new alignment is greater and has a tendency to wall off the now open corner of Copley Square.

Because of a frequent comparison of values which are not in fact equivalent, as well as a questionable selection of noise measurement periods, it is difficult to judge the assessments of noise impacts made in the EIR. The noise measurement methodology, in particular, is open to question.

Sound level readings were taken over the course of an entire week; however, only one reading (out of 43) was taken during the rush hour period of 7:00 - 9:00 a.m. and 4:00 - 6:00 p.m. on weekdays. It is interesting to note that this reading, taken at 4:13 p.m. (hardly the peak of rush hour) on Wednesday, August 16 in Copley Square, had the highest A-weighted noise readings of any measurement taken. It should be further noted that the entire noise measurement program took place during mid - to late August, the peak of the summer vacation period. Traffic-generated noise levels could be expected to be higher at almost any other time of year.

These off-peak hour measurements are used (p. 4-103) to indicate that all existing values fall within a range of 55-70 dBA, which is somewhat less than the level found in other commercial areas of downtown Boston (Table 4.6-6). The table, however, is a measure of maximum measured rush hour/midday noise levels. Clearly, this is not comparable to the noise measured for the EIR.

A second area where noncomparable figures are used is in the projection of noise impacts during the construction period. Reference is made (p. 6-31) to Boston's Regulation 3.1 (Table 6.6-1) which limits  $L_{10}$ , the noise level which is exceeded 10% of the time. Comparison is made with the projected impacts (Table 6.6-4) shown by  $L_{eq}$  for an 8-hour day, an average figure which is normally lower than  $L_{10}$ . Even so, projected impact during the construction period can only be brought within the Boston code by redefining a residentially zoned area (Harcourt Street) as a commercial use. Construction noise impact also exceeds the allowable residential levels on Yarmouth Street and at the Gloucester Apartments.

Noise impact during the operational phase may also be ques-

tioned. While decking over the Turnpike will certainly reduce the impact of that traffic noise source, as the report itself notes (p. 4-99), the road is already depressed throughout the project area, sharply reducing the noise associated with it. Therefore, it is difficult to accept the 10 dBA credit (a reduction of one-half the noise!) claimed for certain areas around the site simply by decking over the Turnpike. Secondly, there is no reason to assume that noise impacts due to increased traffic on adjacent streets will be minimal. Since these streets are already heavily trafficed, an increase in flow is bound to increase congestion. Since this will cause more acceleration and deceleration, with their inherent higher noise levels than steady state, the assumptions made on pp. 134 & 135 are highly suspect. When these impacts are added to levels which are probably during peak hours, much higher than those measured, the overall effect is likely to be severe.

One further area which must be addressed in more detail is the noise associated with the retail building cooling towers. Such towers can be very significant noise sources, and they are inherently very difficult to silence. Their contribution to the project's overall noise impact, particularly since it will be virtually constant whenever the retail area is in operation, could be very significant.

In summary, the potential noise impact of the project has not been assessed in adequate detail. The measurements of sound levels and the assumptions about noise impacts seem to have been made in such a way as to minimize their negative values. Because of this, we find it difficult to have confidence in the conclusions of minimal negative (and in some cases substantially positive) noise impacts drawn in the EIR.

## SECTION F

### COMMENTS ON COPLEY PLACE ENVIRONMENTAL IMPACT REPORT

Prepared for  
Back Bay Neighborhood Association

by  
Douglas W. Dockery  
November 27, 1978

#### Determination of Background Air Quality

Present and anticipated background air quality levels at the site must be estimated in order to evaluate the impact of the Copley Place project. Inasmuch as representative air quality monitoring is not available for this site, background values were estimated by: 1) comparison with nearby long term monitors, 2) short term monitoring at the site, and 3) air quality modeling. Three pollutants are considered--CO, NO<sub>2</sub>, and TSP. Let us consider first carbon monoxide (CO).

Carbon monoxide is the principal pollutant of concern because of the high traffic volumes and restricted mixing in the street canyons of the area. The principal approach to determining background CO was modeling. The modeling methods used are "state of the art". The available information on the input parameters is limited, however, and a complete evaluation of the results is not possible. I am somewhat surprised that the predicted mean peak hour concentrations and eight hour averages show such small variation across the impact area. This is either due to a constant background concentration added to the calculations, or, more likely, an insensitivity of the method to the local emissions and meteorology. Given that worst case conditions are the only ones reported, I think the latter is the case, but would like better definition of the actual method used.

The model calculations were compared with long term observations at Kenmore Square and short term monitoring in the project area. The comparisons are not very good. The Kenmore data is considerably higher than the modeling, as would be expected. The short term monitoring values are considerably lower. Given the short period of record, this also should be expected for estimation of maximum values. I think their arguments would be considerably strengthened if model calculations for the specific conditions during the short term monitoring were compared with the actual observations. Estimated traffic volumes and meteorology from Logan are readily available. Moreover, actual traffic volumes and meteorological observations are available for the site. If the models can predict the well-documented observations, then I would have more faith in their predictions of background and site impact.

I will note in passing that the maximum instantaneous CO levels measured were 20 ppm in front of the Copley Plaza Hotel (Figure 4.5-4). This compares very well with calculated worst case conditions calculated as 20-25 ppm at the same location under the no-build analysis (Figure 6.1-2). I think this demonstrates the ability of the models to predict the detailed CO distributions in Figure 4.5-3 and -4, and would suggest that this additional modeling be done, given that the comparison between predicted and observed are not very impressive.

Background levels for Total Suspended Particulates, TSP, and Nitrogen Dioxide, NO<sub>2</sub>, are estimated from observations at nearby long term monitoring sites and weak qualitative arguments. Violations of the annual average standards are not expected, and I would agree with that. On the other hand, annual means will approach standards, and there will be little additional impact from this facility which will be acceptable.

Of more concern to me are the short term standards. As with the annual average values, it appears that the 24 hour TSP averages will approach but not

exceed standards. Some improvement can be expected upon completion of the project. Violations during construction should be expected however. Is it reasonable to trade off some short term degradation for a longer term improvement? I think so, but I think that the impact of construction on air quality can be ameliorated by well known methods, especially the application of water to keep dust down. Monitoring by inspectors from the city and state and community groups is probably the most effective method for ensuring this.

No short term standard for NO<sub>2</sub> is discussed, but the state has denied the permit for the Medical Area Total Energy Plant based on a proposed 24 hour NO<sub>2</sub> standard. The background data required to consider this question is not included in the EIR, and I will have to research this a little more before commenting on it.

#### Determination of Project Impact

The methods used to evaluate the impact of the Copley Place project on CO levels are "state of the art" as reported. As mentioned in the EIR, there is considerable error in these estimates, and I feel that ERT should specify the confidence interval they would associate with their estimated impacts. Not that ERT is unique in failing to specify the error limits of their calculations, but rather that their analysis is in all other ways so excellent, that the lack of confidence limits is noteworthy. At least they were requested to consider the case of an overall 10% reduction in traffic. The results seem to imply that the calculations are not very sensitive to the local traffic. I am not sure, however, that a 10% increase would not have a much greater increase because of a rapid degradation of traffic flow to lower levels of service in the area. In general, I would recommend that any air quality be estimated from the median traffic projections and also  $\pm 10\%$  of those projections, including changes of level of service, to ensure that reasonably stable air quality predictions are possible.

To return to the main point, as stated in the EIR, the changes rather than the absolute values of predicted CO levels should be considered. From this perspective we see an improvement in the air quality in the immediate vicinity of the project, with degradation in the surrounding residential areas, as demonstrated by the calculations for Newbury Street. It is unfortunate that similar calculations were not made for the South End and St. Botolph's Street areas, but more on that in a minute. These changes are in large part due to the covering over of the Mass Turnpike, and venting the emissions through a 100 foot shaft. The impact of the Turnpike is displaced to the surrounding neighborhoods. No violations of standards are predicted, but there is not enough data supplied in the report to evaluate the adequacy of the ventilation shaft. Building wake capture of the exhaust and uptake by surrounding buildings, especially the office and hotel towers are significant problems which are not adequately treated in the EIR. I assume that this is only because the design is not finalized and that these problems will be considered in the proposed wind tunnel studies.

With regard to the decking, I am very disappointed that no ventilation is proposed for the covered AMTRAK and Orange Line right of ways. It is argued that the number of trains is small, and that people spend very short periods of time in these areas. On the other hand, there is growing concern about emissions from diesel engines, that is nitrogen oxides and various hydro-carbons. As I mentioned earlier, the state has denied a permit for MATEP based on a proposed one hour NO<sub>2</sub> standard. I would expect that this same standard should be applied to commuters waiting for trains (up to one hour). Moreover, there is considerable concern about the carcinogenicity of diesel exhaust. What of the exposures of people in homes which abut the tracks at both ends of the proposed tunnel? With or without standards, I think it would be wise to provide an elevated exhaust for this cover.

My most serious concern is with the lack of analysis of the air quality impact on Harcourt Street and the surrounding residential area. As described in the EIR, the most dramatic increase in traffic will occur on Harcourt which will be the only entrance and exit to the parking garage. Despite this, and the existing housing and the proposed housing to be built on Harcourt, no calculation of air quality impact was made. The short-term CO monitoring showed very low levels there (2-3ppm) at present. I would expect to see the greatest increases here with violations of the one hour standards likely during peak hours.

At present this area is open to the east leading to good dispersion. There is very little traffic. The Copley Place project will create a street canyon here, greatly reducing the dispersion in the area while increasing traffic by several orders of magnitude.

I found it interesting that in the Noise Impact analysis (Section 6.6.4), violations of the noise standards for residential areas were predicted on Harcourt Street during construction. It was implied that this area should be considered a commercial rather than residential area, in which case there would be no violations. I think the residents of the street would object to this, as well as the members of the Bethel Revival Church where background noise measurements were made.

#### Recommendations

In summary, I feel that the air quality analysis for the Copley Place project was well done but that the following points should be considered.

- Potentially, the most important impact will be on Harcourt Street which was not analyzed directly. Impacts of increased traffic and air flow changes should be considered.

- The project will improve local air quality by exhausting the air from the Mass Turnpike higher into the atmosphere. Wind tunnel studies should consider this ventilation shaft in detail including the potential for building wake trapping and interactions with buildings within the project, especially their make up air intakes. With proper design, the projected increase in CO levels in the Back Bay and other residential areas can be minimized.
- A similar ventilation system for the railroad right of way should be included into the plans.
- The estimates of background air quality could be considerably strengthened if the air quality models were directly compared to the short term monitoring results.
- The potentially high CO levels under the "sky walk" on Stuart Street should be investigated in more detail. Simple design modification as suggested in EIR may correct this situation.

The  
Neighborhood Association  
of the Back Bay  
315 Dartmouth Street  
Boston, Massachusetts 02115

September 27, 1978

Mr. Ken Himmel  
Urban Investment and Development  
Suite 4310  
Prudential Tower  
Boston, MA 02199

Dear Mr. Himmel:

I am writing on behalf of the Neighborhood Association of the Back Bay to express our concerns regarding the UIDC proposal to develop the Copley Square Turnpike Site. As you know, N.A.B.B. has consistently supported the general idea of development at this site. However, the project as proposed promises to have a number of severe negative impacts which, to us, overcome its potential attractiveness.

Virtually all our concerns have been expressed verbally in the workshops held during the past two summers, but regrettably many of them are still being ignored. Our three major concerns are:

1. scale and size of the project;
2. its design; and
3. its economic impact on Boylston Street, Newbury Street, and Massachusetts Avenue.

Other issues include: automobile traffic and number of parking spaces - effect on air quality, traffic, and parking in the Back Bay, the effects of shadows on Copley Square, the location of the hotel which as now proposed presents a physical barrier to entering the project, and pedestrian traffic and access to the project by Back Bay residents. Some of these issues will be addressed in the environmental impact study and the economic impact study, and we anxiously await the results of these studies.

However, to the most important issue of scale and size we find UIDC thus far has been particularly unresponsive. Let me state as explicitly as I can that we find the proposed project far too large. It is too large physically - the program as of July 20, 1978 is 14 percent larger than in the guidelines of September 22, 1977.

The sports center is an addition which serves little public good. I do not note its square footage on page 3 of the Summary of the Workshops, unless it is the 33,000 sq.ft. noted as theatres and entertainment. The project is too large economically. The department store spaces have risen about 25 percent from 225,000 sq.ft. to 290,000 sq.ft. And it is too large from an environmental point of view.

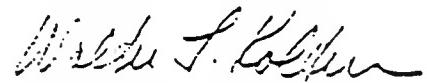
The current design with its enclosed structure and its fortress-like quality, and the lack of open public spaces are not in keeping with the surrounding neighborhoods and the City as a whole. Neighborhoods should be brought together and not divided by a highway or a shopping development. The project as proposed and designed is basically a self-contained suburban shopping mall, which has been placed without significant alteration into the middle of the City. It would be accessible by car, but difficult to reach on foot. It would close in Copley Square and would not provide sufficient interaction with the surrounding community. For these reasons alone, the present plan is unacceptable.

Finally, we hope the economic impact study will be of sufficient breadth and depth to shed light on our third major concern.

The negative physical, economical, and environmental impacts would be diminished significantly if the project were reduced in size. It also would help if development on the old S.S. Pierce site were limited in scope and were no higher at any point than the Public Library. Although, as stated at the outset, the N.A.B.B. supports the general idea of developing this site, we will oppose the present UEDC proposal as strongly as possible unless the project is made smaller and more accessible to our neighborhood.

We look forward to meeting with you and your associates to discuss various alternatives to see what can be done to make the project viable and satisfactory to both of us.

Sincerely yours,



Walter L. Koltun  
Chairman, N.A.B.B.  
Committee on the  
Copley Place Project

cc: Barney Frank, State Rep.  
Frank T. Keeze, Director,  
Office of State Planning  
Robert E. Patterson, Deputy Dir.,  
Office of State Planning  
Robert Ryan, Director, Boston Redevelopment Authority  
Richard M. Nemrow, President, N.A.B.B.  
Mark J. Waltch  
Members of the N.A.B.B. Copley Place Committee

The  
Neighborhood Association  
of the Back Bay  
315 Dartmouth Street  
Boston, Massachusetts 02118

November 7, 1978

Mr. Frank T. Keefe  
Director, Office of State Planning  
One Ashburton Place  
Boston, MA 02108

Dear Frank:

Since the initial discussions early in 1977 regarding the Copley Place Project, the Neighborhood Association of the Back Bay (NABB) has voiced its concern about the size of the project. In September, 1977 the Copley Square Citizens' Review Committee (CRC) issued its report, listing guidelines which included the detailed program and specific numbers for the size of the hotel, total retail space, office space, and parking space. On this basis and with assurances that housing would be a part of the project, the NABB representatives were favorably disposed towards the project, pending the outcome of environmental and economic impact studies.

The first increase in project size occurred with the new program proposed in July, 1978. The hotel increased from 300 rooms to 350 rooms (712,000 sq.ft. to 770,000 sq.ft.), the retail space from 590,000 sq.ft. to 741,000 sq.ft., and parking from 1,000 spaces and 375,000 sq.ft. to 1,200-1,400 spaces and 450,000-525,000 sq.ft. Office space was unchanged at 600,000 sq.ft.

On September 27, 1978 I wrote to Ken Himmel expressing grave concerns about these increases, as well as other issues such as pedestrian accessibility, location of the hotel, parking spaces, air quality, shadows, etc. On October 26, 1978, just 7 weeks before December 15, when all issues are to be resolved and the lease to be signed, the developer had the nerve to suggest the possibility of adding a third department store, i.e. increasing the retail space further. Moreover, he now seeks parking spaces for 1750 cars, which is 75% more than the 1,000 originally proposed. Let me state as explicitly as I can that we are unalterably opposed to a third department store and indeed to any further increase in total retail space or parking space. If either is increased, we will oppose the total project with everything at our control.

As you know, even without these new additions there were serious problems with the project. We proceeded in good faith because you assured us that the CRC would have ample opportunity to be heard and heeded. I now fear the whole process has been a sham.

You are proceeding at breakneck speed to wind up the project by December 15 and to sign the lease. This is an unhealthy pace and provides no time for either the CRC or the State to examine adequately and to respond adequately to the environmental impact statement and to the economic impact study. For example, the CRC and the State have 30 days to examine an environmental impact statement of hundreds of pages. This 30-day period will end on December 7 or 8, only 1 week before you want to sign a lease. Obviously the lease already will have been prepared. What if the CRC raises serious objections? Moreover, the preliminary findings of the economic impact study will not be discussed until November 16. When will the final findings be discussed? What if the study raises serious questions? Again, let me state as explicitly as I can that if you choose to railroad the project through by December 15, we will oppose it with everything at our command.

We in the surrounding neighborhoods will be those most affected and before we agree to this project we want assurances of an adequate public process that will help solve all the issues that have been raised, and not a process that is hurried. We want a project of a size such that the inevitable negative economic, environmental, and physical impacts can be tolerated and do not outweigh the positive impacts.

Sincerely,



Walter L. Koltun

Chairman, NABB Copley Place Committee

cc: Governor Michael Dukakis  
Mayor Kevin White  
State Representative Barney Frank  
State Representative Mel King  
Secretary of Transportation, Fred Salvucci  
Secretary of Environmental Affairs, Evelyn Murphy  
Deputy Mayor Kathy Kane  
Director, BAI, Robert Ryan  
Vice President, WIBB, Ken Himmel  
WIBB Board of Directors

22 November 1978

Frank Keefe  
Director, Office of State Planning  
One Ashburton Place  
Boston, Mass. 02108

Re: Copley Place Project

Dear Frank:

The copy of a letter that Walter Koltun is hand delivering to you dated November 20, 1978 and written by Mark Walther is a fair and comprehensive summary of the position the N.A.F.B. is taking in the Copley Place Project.

Rather than having us identify any one concern, we would like to singularly state that the project in relation to parking and traffic is "too big".

The number of parking spaces allocated for retail use is too little and the traffic that will be generated into our neighborhood would be of concern alone to oppose this project.

Our estimates now show that the number of shoppers expected at Copley Place Project far exceed the 17,000 as projected in the E.I.R.

It is of utmost importance that the size of Copley Project be made smaller and this determination made before any leases are signed.

Sincerely,

THE NEIGHBORHOOD ASSOCIATION OF THE BACK BAY

Richard Nemrow  
President

TO: Mr. Frank Keefe, Director, Office of State Planning  
Mr. Richard Nemrow and Dr. Walter Koltun, NABB  
RE: Copley Place proposed development

Nov 20, 1978

I would like to summarize my understanding of the position of the NABB as it concerns the proposed development. It is my recommendation that Nemrow and Koltun meet with Keefe at the earliest possible time to discuss that position. It is not included in my contract with the Massachusetts Turnpike Authority to participate in any way in these negotiations, but since I have been told of the position of the NABB in the course of pursuing my work, I feel it is desirable to forward this information to you at this time.

The NABB are questioning certain information and decisions made to date:

1. The Draft EIS indicated 17,000+ people per day would be using the retail space; they feel the actual expectation should be more than twice that number.
2. The parking being allowed will be grossly inadequate for the scale of retail development proposed. There is a serious parking and traffic problem in the Back Bay now and inadequate parking will further clog the neighboring streets.
3. The total retail space now included in the development proposal far exceeds the area being contemplated when the Guidelines were agreed upon.
4. The design of the physical structure, as we think we understand it, does not allow sufficient open space on streets.
5. There is inadequate time for the evaluation of the Draft EIS, the economic consultants' report and the report of Waltch Associates Inc.
6. The design of the structure, its parking areas, access points, signage, lighting, traffic and pedestrian considerations have not been sufficiently detailed to allow for approval or disapproval. There is insufficient material to become a meaningful part of a lease.
7. It is generally believed that a lease between the Turnpike Authority and UIDC will be signed on or about December 15.

The NABB, therefore, has stated to me that they would be agreeable to the signing of such a lease only if the lease includes the following provisions and that there be an adequate mechanism, "with teeth," for enforcement:

A. The CRC will be adequately funded to continue meeting in an advisory capacity until completion and occupancy of the proposed development.

B. A smaller reviewing group be formed with authority to approve or disapprove the plans and specifications as they relate to design, traffic, parking, open space, pedestrian access. Such group may include representatives of the State, City, NABB and other organizations. This group should also be funded to allow for the use of technical consultants.

C. An area of approximately 100,000 square feet be taken from proposed retail use and be used for additional public use such as open space and plazas relating to street uses.

A handwritten signature in black ink, appearing to read "Mark".

MJW/LMB

4 December 1978

Honorable Governor Michael Dukakis  
State House  
Boston, Mass.

Re: Copley Place/Project Back Bay

Dear Governor:

In brief to summarize our meeting of Monday, December 4, 1978. We believe that a lease between the State/Turnpike Authorities and Urban Investment and Development Co. will be signed on or about December 15, 1978.

We would be agreeable to the signing of such a lease only if the lease includes the following provisions and that there be an adequate mechanism "with teeth" for enforcement.

1. Maximum space allocated for project be identified as follows:

A. RETAIL

1. Department stores, mall shops, restaurants, etc. 550,000 sq. ft. net rental. This represents 100,000 more than the original guide lines called for on September 22, 1977.
2. Public service and mall space should not be less than 188,000 sq. ft. as shown on the developer's program sheet dated November 2, 1978.

B. HOTEL

1. Guest rooms/public support space, 300,000 sq. ft. We have not changed the developer's figures but, do ask that the final design of the hotel be sensitive to the Copley Square Mall in regard to winter shadows.

C. OFFICE

1. As shown by developer, 600,000 sq. ft.

4 December 1978

-2-

Honorable Governor Michael Dukakis

D. PARKING

1. Should be figured as a minimum need in conjunction with the amount of non-frozen spaces available as determined by the City of Boston. This figure along with the E.I.R. and Economic Impact Reports should help determine the final size of the project.
2. The CRC will be adequately funded to continue meeting in an advisory capacity until completion and occupancy of the proposed development.
3. A smaller reviewing group be formed with authority to approve or disapprove the plans and specifications as they relate to design, traffic, parking, open space, pedestrian access, etc. Such group may include representatives of the State, City, N.A.B.B. and other organizations. This group should also be funded to allow for the use of technical consultants.
4. An area of approximately 100,000 sq. ft. be taken from the ~~project~~ for open space and plazas relating to street uses on Huntington Avenue.

Respectfully submitted,

THE NEIGHBORHOOD ASSOCIATION OF THE BACK BAY

Richard Nemrow  
President



# UNITED SOUTH END SETTLEMENTS

Executive Office

566 Columbus Avenue, Boston, Ma. 02118  
Telephone 617/526-3610

C-2

March 26, 1980

Kenneth L. Brown  
Executive Director

Community Centers:

New Harriet Tubman House  
36 Columbus Avenue  
36-8610

Children's Art Centre  
6 Rutland Street  
36-9666

Family Life Program  
1 Monsignor Reynolds Way  
26-1047

Older Adult Services

Cathedral Project  
117 Harrison Avenue #399

Rutland Street Center  
8 Rutland Street  
36-2840

Camp Hale  
Center Sandwich, N.H.

Secretary of Environmental Affairs  
Executive Office of Environmental Affairs  
100 Cambridge Street  
Boston, Massachusetts 02202

Dear Mr. Secretary:

I would like to take this opportunity to comment on the Draft Environmental Impact Report Supplement/Draft Environmental Impact Statement for the proposed Copley Place Project. I feel that the report has not adequately examined the environmental impact which the proposed project will have.

In particular, I am concerned that the housing displacement caused by the project has been inappropriately dismissed. The word "displacement" never even appears in the body of the report. Yet, the Housing Impact Study prepared by Economics Research Associates demonstrates that the Copley Place Project will increase the demand for housing in the surrounding communities and will indeed result in the displacement of area residents.

Additionally I feel that the Draft EIR/EIS is deficient in the ways it addresses the issues of planning and coordination of the project with the neighborhood and related developments. I fully concur with the comments made by the Tent City Corporation and Trinity Church and believe that the questions they raised must be answered.

-----  
Sincerely,

*Kenneth L. Brown*  
Kenneth L. Brown  
Executive Director  
United South End Settlements

RECEIVED

MAR 27 1980

OFFICE OF THE SECRETARY OF  
ENVIRONMENTAL AFFAIRS

KLH:jl

United Way



# Back Bay Association

Suite 501, Statler Office Building, 20 Providence Street, Boston 02116 482-8470

C-3

March 20, 1980  
RECEIVED

Mr. John A. Bewick  
Secretary of Environmental Affairs  
100 Cambridge Street  
Boston, MA 02202

MAR 24 1980

OFFICE OF THE SECRETARY OF  
ENVIRONMENTAL AFFAIRS

RE: STATE IDENTIFICATION #EOEA 03074

Dear Mr. Bewick:

The Back Bay Association strongly favors the construction of the preferred Copley Place program. The project reinforces the commercial character of Back Bay; it fills a major existing gap in the urban texture; it provides active frontage along Huntington Avenue, Dartmouth Street, Harcourt Street and the Southwest Corridor; and it provides active links between adjoining communities.

Political wags, city planners and business people all wonder what the shape of the city will be by the year 2000. The Chamber of Commerce has a so-called Boston 2000 Committee, which is presently wrestling with the shape and form of the city 20 years hence. It is very clear from our perspective that Boston's survival and prosperity depend upon further development of office space and of hotel and convention space. Boston has already become a service-oriented office city. Coupled with its unique historical character, it has a very bright future as a convention and tourist city. If, at the same time, we can encourage the development of new residential housing throughout the downtown area, we will have no concern about the shape of this city by the year 2000.

The development of Copley Place is a necessary and critical link in this chain of development. It represents further development and intensification of hotel uses in the Back Bay, which, coupled with an expanded Hynes Auditorium, should accommodate the next generation of hotel users. The retail space provided for in Copley Place should coordinate with and bolster the work the Back Bay Association has already done on Newbury and Boylston Streets, as well as the prospects of an improved Prudential retail center.

The impacts of Copley Place development are minor. No structures are demolished; it has direct access from two major public transportation lines; and it produces essentially "non-polluting" industry of a nature which is compatible with the future development of the City of Boston. In fact, Copley Place is an emphatic plus for Boston. Wasted acreage will be put to productive use. It should act as a long sought bridge between the South End and the Back Bay communities. It will increase our industrial capability in the convention sector, and it will bolster the retail aspect of the Back Bay.

John A. Bewick

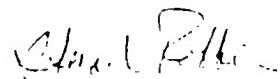
- 2 -

March 20, 1980

In sum, the project will be a positive one for the city. Moreover, the developer, Urban Investment and Development Company, has participated in a community review process, which has been remarkable in its openness, and which will hopefully be a model for successful city development in the future. They are to be congratulated for participating in this process and for producing a project which will serve as a major addition to the city.

Yours truly,

BACK BAY ASSOCIATION



Stuart Robbins  
Executive Director

SR/r

# Sepac

SOUTH END PROJECT AREA COMMITTEE  
32 Rutland St.  
Boston, Mass. 02118  
tel. 262-4828

C-4

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Ed Teixeira  
Barrie Turnbow  
Marcia Wiley

Dear Mr. Mertens:

In regards to the Draft Environmental Impact Statement (EIS) submitted to your agency for the proposed Copley Place development, the South End Project Area Committee would like to go on record with the following comments:

1. Property Values: The project will clearly have a long-term impact on housing values in the South End. With the drying up of subsidies for low-moderate income people, it seems clear that only people able to afford to live in the area will be the rich. The BRA-commissioned report by ERA confirms this fear. Its says:

"In addition to the proposed Copley Place development, there are a number of other important factors which are likely to have an impact upon the price and availability of housing in the impact area. Among these factors is the continued growth in inner city employment which, when viewed within the context of rising transportation costs, will likely place increasingly greater pressure on inner city housing. The completion of the Southwest Corridor Project, scheduled for 1985, will greatly improve the environment of those blocks in the South End and Fenway which are adjacent to the railroad tracks.

Likewise, the completion of urban renewal activities within the South End will contribute to the enhancement of the physical environment in this neighborhood, thereby making it more attractive for upper income renters or buyers.

Reassessment is another factor which could impact certain neighborhoods, particularly the South End, resulting in the displacement of low, moderate, and middle income renters and low to moderate income owner occupants.

Other factors such as the willingness of low and moderate income owner occupants to sell their homes, the future of the many businesses and junior colleges in the Back Bay, the continued desire of the 25 to 44 year old age group to live in the city plus the continued demand for condominiums, all will contribute to the future price and availability of housing within the impact area, as well as the entire city." (ERA SUMMARY REPORT)

How have the above factors been taken into account? For example:

\*\*were low and moderate income homeowners surveyed and asked if they would sell their homes if the price was right? Or will we wait until the contracts are signed and allow speculative realtors to blockbust?

\*\*were surveys taken of absentee owners to find out how many of them intend in the next five years to convert their buildings to condominiums? With the new "one year notice" passed by the City Council, an owner can wait until the Copley Place Project is secure, give his tenants notice, and then get inflated rents from people wanting to live near the "new Boston." This potential impact has not been estimated.

March 26, 1980

RECEIVED  
MARCH 27 1980  
OFFICE OF THE SECRETARY OF  
ENVIRONMENTAL AFFAIRS

. Jobs: The ERA report concluded that the impact of the jobs created would be minimal. Why? Because they said the people working at Copley Place would be unable to afford to live in the impact area! We can't let this convoluted thinking go by us. If those working at Copley Place are earning modest wages and can't even afford to live in the area it means the rents and property values will be going way up. Who needs marginal jobs at the expense of a neighborhood?

2

Copley Place seems to be heading us toward the "Johannesburg model" whereby the poor and people of color are removed from the center city and shipped back to the city only to do the menial labor. Are we supposed to stand by and nod our heads and say how wonderful it is that these smart businessmen from Chicago are giving us all these wonderful facilities and ignore the fact that these very facilities are not for everyone? Or should we rejoice that a downtown country club is being created at our expense?

. UDAG: UIDC is asking the Federal government for \$19 million UDAG grant for the Project - if they get it, it will be the largest such grant in the nation's history. For \$19 million, the Feds could build about 500 units of housing. Which does Boston need more - luxury hotels, Nieman Marcus, specialty stores for the well-to-do, or more housing for its people? One need only look at the waiting lists for public and subsidized housing projects to see the answer. In the 1978 Consensus Survey of South End residents commissioned by the BRA, some 65% of those questioned voiced strong support for the construction of more subsidized housing. Imagine what the result would be if those living in the impact area could vote on whether \$19 million should be used to build Copley Place or to construct more housing.

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. Tent City: Which brings us to Tent City. SEPAC supports the inclusion of building Tent City in accordance with the guidelines set forth by the Tent City Task Force. Last September, in a community election, the Tent City plan for subsidizing new construction at 25% low, 50% moderate, and 25% market was endorsed over the BRA plan of 75% market by a vote of 906-156. If Copley Place is going to go forward, the least it can do is afford the South End with some units of affordable housing to offset the years of displacement and hardship which will follow for low/moderate income residents. SEPAC has reviewed and fully supports the comments put forth by the Tent City Corporation and Trinity Church on this matter.

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. Nuclear Power: It is distressing to see that the construction of Copley Place is putting so much dependence on the construction of the Pilgrim II nuclear power plant. Given the already documented dangers of nuclear power, Copley Place should investigate and re-work its energy plan so as not to be dependent on this life-threatening and expensive source of energy.

. Conclusion: SEPAC has already gone on record opposing Copley Place at least until some guarantees are made regarding Tent City and the Tent City Task Force proposals. SEPAC's position has not changed, it has only grown more determined to see that if Copley Place gets built, it will only do so after the above concerns are satisfied.

Sincerely,



DOROTHY FLYNN  
Moderator  
South End Project Area Committee

# Education / Instrucción inc.

P.O. Box W  
Roxbury, Massachusetts 02119

P.O. Box 12245  
Hartford, Connecticut 06112

C-5

Executive Office of Environmental Affairs  
100 Cambridge St.  
Boston, Ma.

RECEIVED

APR 8 1970

Dear Mr. Secretary,

OFFICE OF THE SECRETARY  
OF ENVIRONMENTAL AFFAIRS

Subject: Copley Place Project Draft EIS

Education/Instrucción is a non-profit organization working to enforce Civil Rights in housing and Federal programs in the Greater Boston Area.

We would like to express our concerns on the Draft Environmental Impact Statement for Copley Place in Boston. We are dissatisfied with the EIS in terms of the Copley Place Project's effect on minority residents in the impacted areas, specifically for the following reasons:

- 1) The EIS does not address itself to displacement of residents of the impacted areas.

Although the Economic Research Associates' Housing Impact Analysis does discuss displacement and shows that displacement due to public and government policy has occurred in the past and will continue to occur, the EIS does not address itself to the issue of displacement. The ERA Housing Impact Analysis does point out that property values in the impacted areas are rising at a rate of "20,000 dollars in 6 to 9 months". The EIS should include a comprehensive analysis of the effect of Copley Place on the housing supply in the impacted areas and the increase in displacement as well as an analysis of property values.

- 2) The EIS does not address the issue of displacement specifically to the needs of minority people.

The ERA's Housing Impact Analysis states that "the percentage of black residents in the Fenway has increased while the percentage of blacks in has declined in the South End". The South End Urban Renewal Project caused displacement of minorities from the South End and resulted in a ripple-effect in the housing patterns of the adjacent Fenway as blacks were displaced. Implementation of public policy regarding relocation, resulted in a shift of minority residence at the Fenway area. The impacted areas of the Copley Place Project include the Fenway as well as the South End and will cause additional displacement of low-income and minority people as Real Estate values rise. Both displacement in the impacted areas and the ripple-effect in residential patterns by race, should have been addressed in relation to minority housing needs and equal opportunity issues.

- 3) The EIS fails to acknowledge and address the housing needs of minorities in the impacted areas.

The EIS acknowledges the areas most effected by Copley Place are Census Tracks 707 and 708. These two census tracks are 66% and 87% minority, respectively (U.S. Census 1970). This represents one of the most concentrated minority

areas in the city of Boston. The failure to address this specific issue is negligent of the goals of the federal UDAG program. The HUD regulations regarding UDAG selection include the impact of the proposed project on the special needs and problems of low and moderate income, and minority persons. (24 C.F.R. 570.457(d))

In only one chart in the entire ERA's Housing Impact Analysis does the document breakout minority population in relation to housing goals. The EIS does not address the specific need of minorities at all. In light of a recent study by the Harvard School of City and Regional Planning, 60.8% of all minority households in Boston are excessively financially burdened by housing needs. A recent HUD study stated that minorities in Boston pay more for lower grade housing than do whites. The omission of minority housing need is a gross deficiency in the EIS analysis.

4) The EIS fails to address the availability of housing and the wage/rant relationship with regard to the creation of new jobs for minorities at Copley Place.

Although the EIS does address the potential increase in jobs for minorities, it fails to address the availability of housing to minorities within reasonable distance to the Copley Place project. Without fully developing the analysis of wages in relation to rental or purchase costs for decent housing within the Copley Place area, the full picture of the potential for a "Johannesburg" situation(i.e., isolating minorities and low-income families on the periphery of the urban center) cannot be fully understood.

5) The EIS fails to fully examine and discuss the well-being and health of the people living in the impacted area.

The New England Journal of Medicine reports, in a paper entitled "Zones of Excess Mortality in Mass."\* (1977) has a much clearer analysis of the problems of the low-income and minority people of the South End. When the findings are linked with the Copley Place Project the impacts indicated are much more serious than the EIS suggests. The findings show that the South End, Back Bay and adjacent areas of the city are "excessive death zones". with high mortality rates similar to a "disaster area". The causes of this high mortality rate in "severly deprived"inner-city areas in large urban centers where the highest percentage of blacks and other non-whites result is a combination of severe economic deprivation, poor housing, a mixture of overcrowding and lonliness, family breakdown, personal disability and social instability."

The specific impacts on minority and low-income people are insuf"iciently dealt with in the EIS. It is time the improvements made through public policy as well as private investment addresses the problems of poverty beyond the superficial physical problems. Economic development programs, particularly ones supported by the government, should not displace a class of people from difficult living conditions only to relocate them to other more desperate conditions. The EIS should be re-written to include a comprehensive analysis of the effect of the Copley Place Project on the minority population of Boston and should analyze in full the project's potential effects on the housing needs of minority people in this city.

Sincerely,  
Susan Stuebing  
Education/Instrucción

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**KENNETH D. CAMPBELL & COMPANY**

MANAGEMENT AND COMMUNICATIONS CONSULTANTS

March 24, 1980

City, State & Federal  
Environmental Officials  
Responsible for Copley Place  
EIS/EIR

**C-6**

Dear Sirs:

I think the EIS/EIR on Copley Place is seriously deficient in assessing the visual impact, the wind impact, and the air quality impact of the 3.1 million square foot project.

I request the following further studies before such a major change in the environment of Boston is allowed to get any environmental approval:

1. The consultant (independent consultant) be required to put together a slide show to be shown to the public and to the mayor, the BRA Board & Executive Director, which would provide a sense of how the project will feel to the person in the street in what is now considered one of the most walkable cities in America. Such a show could be put together through the use of special camera lenses which provide the pedestrian's eyevie<sup>w</sup> of the model. Without such a device, the model looks like we might see it if we flew over Boston at a low altitude. The EIS was particularly deficient in this regard, showing drawings that indicated the tallest part of the structure as seen from Copley Square street level was about 100 feet high. The slide show should take a picture from the pedestrian's point of view when standing on the south sidewalk of Boylston Street at a point where one can see the 390' Western Hotel Tower and the 780' Hancock Tower. It should also give a walking tour from the South End up Dartmouth Street from Columbus, from the center of Tent City, from Yarmouth St., from Harwich St., from St. James Avenue by Trinity Church, from Trinity Church front portico, from Huntington & Dartmouth (west & south), from Harcourt St. & St. Botolph looking toward the convention hotel tower and 101 Huntington, from the Christian Science plaza fountain looking east up Huntington--in other words, a complete walking tour through and around the project, which looks both directly ahead at the 5'- $\frac{1}{2}$ ' level, and also looks up to the tops of the Copley Place buildings.

Perhaps then we could get some sense of how it will fit in with the classic buildings of Copley Sq--The Copley Plaza, the Public Library, the Trinity Church.

2. The wind studies should include movies that would be shown to the public and the officials mentioned above to illustrate the effect of the incredible winds around Copley Square on people & buildings due to the addition of Copley Place. The wind channeling mentioned in the report is frightening, given the blow-me-down winds that are around the Hancock Tower without any bounce-back effect from the closing off of Copley Square by a 390' pair of towers. Insufficient thought was given to wind in the construction of the Hancock and of 100 Summer Street, both of which can be a menace

and threat to public safety. Boston should not let this happen again. The wind impact must be studied and demonstrated in a way that a layman and a non-expert government executive can easily understand.

3. I was dumbfounded to read in the air quality portion of the EIS the incredibly high levels of nitrogen dioxide and carbon monoxide that will be trapped under the deck should the ventilation system break down. What is the effect of these levels on someone waiting on the platform for an hour for a train, or stalled in a traffic jam or breakdown on the Turnpike? In March, 1978, the EPA published in the Federal Register its proposal to impose a standard of 940 to 470 micrograms of NO<sub>2</sub> per cubic meter of air for a one-hour per year. That is equal to 0.5 to 0.25 parts per million NO<sub>2</sub>. The levels anticipated are far beyond these proposals. For the Turnpike, the combined Prudential Center/ Copley Place/SW Corridor deck will be an extremely long tunnel which is subject to volumes of NO<sub>2</sub> from the cars and the trains. The CO levels also seem extremely high.

In sum, I think the Copley Place area should be developed if its development does not destroy the visual, physical, and air quality of the area so that the area is no longer an attractive place to walk. Not only could this be destructive of the environment, it could be destructive of the economic attractiveness of the complex.

A moderate build alternative should be explored, with a square footage ranging from the density of the Prudential Center (FAR of 4.4) which would mean 1.7 million square feet for Copley Place, to the earlier program of 2.2 million square feet (FAR of about 5.3) for Copley Place.

No plan, much less a \$20 million Federal subsidy, is acceptable if it has such a negative environmental impact as this project appears to generate. If the development program is sound environmentally on a smaller project, then a subsidy may be in order if the project were not financially feasible.

As it is, it appears that in Copley Place we have a 3.1 million sq. ft. project which is not only unfeasible financially, it is destructive of the qualities of Boston which the city most likes to emphasize. Much more extensive study is in order.

I also seriously disagree with the socioeconomic impact part of the report. Copley Place already is a key factor in people's economic decisions to buy, sell or hold in the South End. As John Norton summarized it at a hearing a few months ago, the consultant is claiming that because he can't quantify the displacement impact of Copley Place, he argues that it doesn't exist. Norton said, "No one has yet quantified the human sexual impulse; but to deny it exists is foolish!"

Sincerely,



Kenneth D. Campbell

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**United South End/Lower Roxbury Development Corporation**

48 Rutland St., Boston, Ma. 02118  
Telephone (617) 266-5451

**C-7**

April 7, 1980

Mr. Albert Hom  
Federal Compliance Manager  
Office of Federal Compliance  
Boston City Hall, Room 957  
Boston, Ma. 02201

Re: Draft Environmental Impact Report/Draft Environmental  
Impact Statement, Copley Place, Boston, Ma.

Dear Mr. Hom:

Pursuant to, and in compliance with, Section 102(2) (c) of the National Environmental Policy Act (P.L. 910190) and implementing regulations of the US Department of Housing and Urban Development (24 CFR Part 58) and other applicable statutes, regulations, and provisions, UDC is pleased to transmit the attached comments and recommendations to be incorporated in the final Environmental Impact Statement.

Faithfully yours,

  
Mr. Syvalia Hyman, III  
President

Enc.

# **COPLEY PLACE DISPLACEMENT**

## **ANALYSIS AND RECOMMENDATIONS**

prepared by  
**Stockard & Engler, Inc.**  
for  
**United South End / Lower Roxbury  
Development Corporation**

**March 1980**

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# COPLEY PLACE DISPLACEMENT

ANALYSIS  
AND  
RECOMMENDATIONS

MARCH, 1980

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Roxbury Development Corporation

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First Edition

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UDC  
United South End/Lower Roxbury Development Corporation  
48 Rutland Street  
Boston, Ma. 02118  
U.S.A.

UDC and other community organizations throughout the South End, the Fenway and the Copley Place "impact area" are concerned about the displacement of low and moderate income tenants which will undoubtedly be created by the advent of the Copley Place development. As part of this concern, a study was commissioned to carry out the following tasks:

- analyze the magnitude of the displacement problem
- estimate the costs of addressing the problem
- research potential sources of revenue to meet those costs
- recommend programmatic approaches to solving the problem

We have estimated the potential displacement of low and moderate income households from the Copley Place impact area, as a result of the UIDC development, at about 725 households. Admittedly, this is a difficult number to estimate as induced demand is not easily quantifiable. Nevertheless, the overall impact on the low and moderate income rental stock in the impact area will be substantial, and therefore demands public policy attention and the adoption of strategies for addressing the problem.

The costs involved in addressing the problem are alarming. Without substantial amounts of government subsidies, the average costs to acquire, rehabilitate and operate a two bedroom unit in the impact area would require a rent approaching, if not exceeding, \$1,000/month. A low/moderate rent of \$300/month barely covers the costs of operating the unit without any money to cover the debt service on the loan to acquire and rehabilitate. In short, the units could be "given away" and low/moderate income tenants would still be paying 25% of income simply to cover operating costs.

In order to reduce this rent to a level which can be afforded by low and moderate income households, lower interest rates must be found (such as the MHFA program) to carry the mortgage, lower taxes (through Chapter 121) must be negotiated, rental subsidies (through Section 8 or Chapter 707) must be obtained, or development costs must be written down (through UDAG funds). Without the "deep" subsidies provided by Section 8, there is no way rents can be lowered to the levels desired unless either the public housing program is used or UDAG funds are captured in substantial amounts.

The political and technical constraints involved in capturing sufficient amounts of subsidies to implement a program on the scale required present significant obstacles which cannot be by-passed. Therefore, we have recommended an approach which takes into account the realities of the situation as best as can be determined at this point in time. Because of programmatic funding limitations and City priorities, it is clear to us that there is no single program which will meet the objectives of the program.

We have suggested that different housing programs may be utilized for various

segments of the overall program; in addition, new approaches should be created by the CDC as the needs and opportunities arise. We have no fixed "model" of MHFA, BHA, UDAG components which will total 725 units. Rather, we are suggesting that the CDC attempt to capture whatever is available to them in order to put together the housing portfolio required. We have indicated that the full utilization of a UDAG loan pay-back from UIDC to the City could provide about 550 units, combining an acquisition program and a leasing program. In addition, the BHA could provide funds through the public housing acquisition and rehabilitation program and Section 8 subsidies could be obtained through whatever avenues open up over the next several years. If these sources of revenues were captured, the programmatic goals of the Housing Preservation Program could be met. There is, however, the inescapable fact that support from the public sector is essential. Indeed, the public sector has the tools and techniques at hand to address this displacement problem but given the lack of initiative to date, the responsibility should be assumed by a strongly motivated Community Development Corporation.

There will be high costs associated with administering a CDC capable of implementing such an ambitious program. We estimate that such costs would run about \$200,000 annually. The CDC which is set up to operate this Housing Preservation Program must have sufficient skills in the real estate development business and must be sufficiently capitalized (ideally from the Copley Place UDAG loan pay-back to the City) to carry out a four year multi-faceted housing program with all the sophistication of a professional development firm. We have suggested the organizational structure required to successfully implement such a program.

## INTRODUCTION

1978 federal legislation required HUD to make recommendations to Congress for the formulation of a national policy to minimize involuntary displacement caused by HUD's programs and to alleviate the displacement problems caused by publicly and privately financed development and rehabilitation. In response to this mandate, HUD has issued its own interim Displacement Report and has commissioned four separate studies around the country to research potential strategies for public policy options regarding displacement.

Clearly the issues surrounding displacement are complex. Urban revitalization offers numerous benefits to cities which have been facing the overall trends of urban decline. Policy-makers at the local, state and national level are seeking ways to expand this pace of reinvestment, viewing it as critical to the future health of the older cities. At the same time, there is a slowly growing recognition of the negative effects of this revitalization process, effects which are felt by those with the least resources for coping with them, e.g., the poor, the elderly and those with special housing needs.

HUD is looking to broaden the framework of public policy discussions to include both sides of the issue because revitalization, in HUD's words, "offers a unique opportunity to encourage the development of neighborhoods that are integrated both racially and economically, where low and moderate income residents can enjoy the benefits of revitalization." In our minds, however, there has been little evidence to date to suggest that low and moderate income residents are, indeed, enjoying any benefits from such neighborhood revitalization.

It is instructive to review HUD's posture on displacement in its interim report. Recognizing the difficulties in defining the displacement phenomenon, the report suggests that the most useful definition is one proposed by George and Eunice Grier:

"Displacement occurs when any household is forced to move from its residence by conditions which affect the dwelling or its immediate surroundings, and which:

1. are beyond the household's reasonable ability to control or prevent;
2. occur despite the household's having met all previously-imposed conditions of occupancy; and
3. make continued occupancy by that household impossible, hazardous, or unaffordable."

HUD then proceeds to enunciate five different types of displacement, according to the degree of Federal involvement and control:

- displacement directly caused by HUD or other Federal or Federally-assisted activities not covered by the Uniform Relocation Act;
- displacement directly caused by HUD or other Federal or Federally-assisted activities not covered by the Uniform Relocation Act;
- secondary displacement associated geographically with Federal or Federally-assisted programs (e.g., the CDBG and UDAG programs) or other activities, such as HUD's Neighborhood Strategy Areas program;
- displacement caused by activities of State and local government (other than those already covered under the Uniform Act), such as local code enforcement; and
- displacement attributable principally to private market forces (e.g., displacement occurring in neighborhoods undergoing revitalization without Federal assistance).

Given these different types of displacement, HUD points out the difficulties in measuring the extent of displacement by each type. However, the report clearly states that most displacement results from private market actions, much of which is the result of market and demographic changes beyond the reach of Federal, State or local action. The report then adds, "Perhaps

most importantly, all kinds of displacement taken together represent only a tiny proportion of the residential moves made by American households each year."

Whether intentional or not, these remarks serve to minimize displacement caused by governmental actions by suggesting in a broad-brushed manner that:

- privately induced displacement is far greater than publicly induced
- displacement is a small percentage of residential moves annually
- displacement is difficult to measure

This contextual approach does not, in fact, diminish the need to focus on publicly-induced displacement of low and moderate income households in a specific target area, the effects of which can be measured. When such is the case, as with Copley Place, public policy options are available to remedy the situation. This is the focus of our report.

HUD has had several conferences and consultations regarding displacement in the past few years from which have arisen many recommendations, such as information dissemination to neighborhood groups, a handbook on strategies to minimize displacement, housing counselling and technical assistance, workshops, research and comprehensive housing strategies. While all these recommendations may have their place, we feel strongly that the one recommendation made to HUD which is critical here is the preservation of the low and moderate income housing stock. Given past and projected trends in the Copley Place impact area, the only viable strategy to prevent the displacement of low and moderate income households brought about by Copley Place is to preserve some portion of the existing housing stock in the impact area for low and moderate income households.

The objective of this report is to analyze the magnitude of the potential displacement problem, the costs associated with providing low and moderate income rental housing and thus the need for subsidies to accomplish this, the sources of those subsidies, and the different approaches to capturing them and implementing a housing preservation program (hereafter referred to as HPP.)

## CHAPTER 1

### MAGNITUDE OF THE PROBLEM

In defining the magnitude of the displacement created by the development of Copley Place, we are primarily using data from the Housing Impact Analysis Report done by Economics Research Associates (ERA) for the Boston Redevelopment Authority in the Fall of 1979. We are also using the same impact area defined in that report (see map attached) so that the data used and analyzed will be consistent.

The demand for housing generated by the Copley Place development in the impact area can be categorized in two ways:

- direct demand
- induced demand

ERA defines direct demand as that component of the total Copley Place work force who will ultimately live in the impact area, some of whom will already live there prior to accepting employment. Induced demand is defined as that component of demand generated by the anticipation of the project from the entire inner city area.

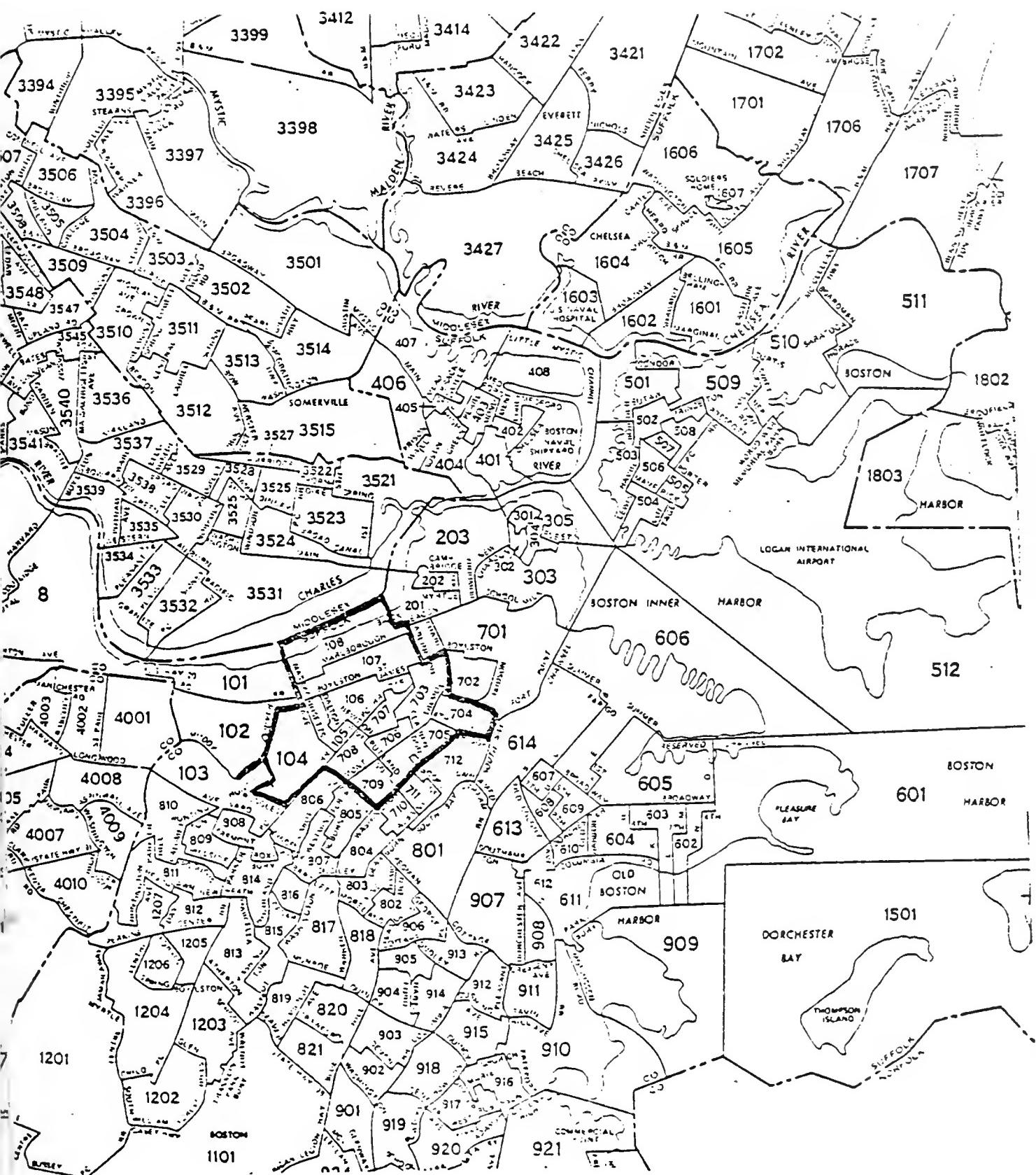
Direct demand was calculated based on information gathered by ERA from similar developments, or development components. We take no issue with these estimates. ERA estimates that 31-34%\* of the total Copley Place work force will be professional, technical or managerial employees, 34-37%\* will be clerical and 21-22%\* will be laborers and service workers. Using mean figures between Program A and Program B, the work force would be divided as follows:

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\*depending on Program A or Program B of the ultimate development

CENSUS TRACTS WITHIN  
THE IMPACT AREA

三二〇



Professional, technical, managerial	2,108
Clerical	2,302
Laborers, service workers	2,394
Others	681
Total	<u>6,485</u>

ERA estimates that 23% of the professional, technical, managerial work force and 17% of the remaining work force will ultimately live in the project area, thus creating a direct demand for housing as follows:

Professional, technical, managerial demand	485
Non-professional demand	<u>744</u>
TOTAL DIRECT DEMAND	1,239

Our concern, however, is not with this total direct demand of 1,239 but rather with the demand created by the upper income professional workers, which is estimated at 485. The potential displacement of low and moderate income households from Copley Place will be caused by households whose higher incomes allow them to pay the higher rents or to purchase market rate condominiums or even to purchase and renovate multi-unit buildings to carry out their own revitalization efforts. The new lower income workers will have a difficult time on their own attempting to find suitable, affordable dwellings in the impact area; they are less likely to force out other households in the same income bracket.

ERA, however, makes the assumption that if the developer adheres to the Turnpike Authority goals of hiring a minimum of 17.2% of this work force from the impact area, the direct demand of those moving into the area will be reduced accordingly because they will already reside there. The resulting numbers of professional, technical, managerial workers moving into the area, for example, would be reduced from 485 to 122.

S-3-2-3

We cannot accept this assumption for two reasons; first, no time frame for prior residency was established in the negotiations about this 17.2% ratio, so in all likelihood, many professional workers will be allowed to move into the impact area after they have been hired (as is now practiced by the City of Boston). Second, the 17.2% ratio was created primarily so that non-professional jobs could be secured by those from the impact area who were unemployed, underemployed, marginally employed or unsuitably employed, thereby insuring some positive local economic development impact. Professional workers were not the major focus of these negotiations; they will most likely be brought in from outside the impact area. Therefore, we have sound reasons for discounting this 17.2% ratio as it applies to the 485 professional workers who constitute the direct demand component of upper income workers which most concerns us.

The second category used in calculating demand is induced demand. The ERA report states that there will be no material induced impact on the housing stock within the impact area because the area is less vulnerable to dramatic change than it was in the early 1960s when the Prudential Center was built. Induced impact from large scale projects, according to ERA, is brought about because of the speculative opportunity which exists in residential areas adjacent to major development projects at the time. ERA claims that housing market conditions in the impact area are no longer speculative, given the trends they project. We disagree with their analysis. Speculation continues to exist in the impact area, even if it is not on the scale of the early

1960s; the prices and the stakes have simply increased, as evidenced by ERA's own baseline profile of the housing stock in the impact area.

Moreover, another aspect of induced demand is the demand which occurs before the opening of a project like Copley Place. This is the aspect of demand which is occurring right now in the impact area, and it will continue to occur through the completion of Copley Place. However, it is difficult to quantify this demand, as ERA has indicated. Waltch Associates, in its evaluation of the retail and residential impact of Copley Place which was commissioned by the Turnpike Authority and the Copley Place Citizens' Review Committee, makes the assumption that induced demand will double direct and indirect demand, although they also admit the difficulty of evaluating this assumption. Nevertheless, induced demand cannot be discounted entirely, as ERA has done. Making a more conservative estimate than Waltch Associates, we will assume that induced demand represents fifty percent of direct demand; in this case, it represents another 240 middle-upper income households being attracted to the area in addition to the 485 who will be employed and move into the area. Therefore, we estimate that approximately 725 low and moderate income households will be displaced by middle-upper income households in the impact area as a result of Copley Place.

Obviously, this estimate could increase or decrease depending on several factors. For example, the total could be reduced by the number of professional workers hired who already live in the impact area. On the other hand, the total could be increased significantly

if the induced demand estimates are too low. In fact, we have only calculated induced demand as a percentage of the direct demand for professional workers. If induced demand is taken as a percentage of total direct demand, the numbers would be much greater. However, given the difficulties of measuring this component of demand, we have accepted this lower number. Even with this assumption, the total estimates of displacement attributable to Copley Place are significant and demand public policy attention.

The time frame for this displacement to occur is estimated to be from 1980 (when Copley Place is officially awarded the UDAG) to 1987. We feel that the direct demand anticipated will be realized within three years rather than the five year period projected by ERA; thus we have not extended the critical time frame until 1989, but we have moved up the time frame to the present as the pressures are building now. The preservation of 725 housing units must start immediately and should be carried out within the next four years. That is our estimated time frame for implementation of the HPP. Clearly, escalating costs will drive up the dollars needed to accomplish this task as time goes on, but this is the subject of the next chapter.

## CHAPTER 2

COSTS

The question of costs involved in accomplishing the HPP will be addressed here on a per dwelling unit basis. There are three reasons for this. First, there are a wide range of buildings in the Copley Place impact area. The stock ranges from large 50+ unit Fenway apartment structures through medium-sized 8-12 unit Back Bay buildings through South End bow-fronts with one to five modest homes through luxury Back Bay condominiums to rooming houses through-out the impact area. These structures also vary widely in conditions, owner status, and utility usage. To perform an adequate analysis of the costs of acquiring, renovating and operating the HPP on a building-type-by-type basis is well beyond the scope of this study. As a result we have collected whatever data we found to be available, adjusted it as seems reasonable and generated a single per-unit fiscal profile for the HPP. While any particular structure may end up significantly higher or lower in initial cost, rehabilitation expense, or operating budget, it is our sense that once a substantial number of units are in the HPP, the numbers we have generate will be the average costs of initiating and administering the program.

Second, the appropriate size of the HPP remains an open issue. Though we believe the number generated in Chapter 1 is appropriate (725 units), it is neither the minimum number of units to make the program successful, nor is it fixed ceiling. As different total project numbers are established, approximate cost figures can be easily obtained by multiplying the per-unit costs by the new targets.

Third, and perhaps most important of all, the ultimate beneficiaries of this program are the low and moderate income individuals and families for whom the impact area will remain a desirable place in which to live. These people will experience the HPP not in terms of millions of dollars of loans or UDAG grants or large operating staff budgets, but in terms of monthly rent for their home. In order to keep the focus of this report clear, therefore, the bottom line will always be monthly rent to a household.

One final word is critical. The numbers which have been generated are startling. They indicate with great clarity that what we have been reading and hearing about housing costs throughout the country is a dramatic reality in the impact area and surrounding neighborhoods today. There is no such thing in our society as low-cost housing. The combination of rapidly escalating purchase prices, ever-rising labor and material costs and abnormally high interest rates have pushed rents and ownership costs well beyond the reach of low and moderate income people. The only way that housing can become available to these people is through some form of subsidy; given the available programs today, moreover, it often takes several subsidies packaged together. There are alternatives from which to choose, but there are no magic solutions. That does not mean that the goals of the HHP cannot be achieved, but it does mean a realistic determination early in the process that subsidies must be sought in substantial amounts. One of the issues this process clearly highlights is the rehabilitation standards to which buildings must be brought if subsidized by public programs. This is addressed below.

### Acquisition Costs

We have observed purchase prices for "shells" in the impact area which range from \$2,000 per unit up. We believe a reasonable number to use for the purposes of this study is \$8,000 per unit. This estimate is high enough to include many structures in basically poor condition, yet low enough that money remains to adequately rehabilitate the structure.

To reiterate, this figure may not be the precise cost of any single property, but a combination of acquisitions would generate such an average, e.g.,

	<u>COST</u>	<u>COST/UNIT</u>
1 20 Unit Apt. Building	@136,000	6,800
1 Bow Front with 3 Units	@ 40,000	13,333
1 Rooming House with 15 Rooms	@ 50,000	3,333
1 5 Unit Townhouse	@100,000	20,000
2 Large Townhouses	@ 34,000	17,000
<hr/> <u>45 Units</u>	<hr/> <u>360,000</u>	<hr/> <u>8,000</u>

Moreover, we expect acquisition costs to grow at approximately 12½% a year in the near future.

### Rehabilitation Costs

This cost serves as the complement to the acquisition price, that is the higher the cost to acquire a building, the less that should be required to spend on the renovation, and vice versa.

It should be noted however that several factors keep this relationship from being simple and predictably direct. First, the source of funds makes a considerable difference where rehabilitation is concerned. Private lending sources are concerned in general about appearance, fire safety, and code-conformance. However, private lending sources provide no subsidies. Their interest rates exceed 13%; they prefer 70-80% loans and 20-25 year terms. Insurance, direct loans or subsidies from public agencies reduce the cost

to the resident, but involve increased rehabilitation requirements and therefore increased overall costs. This means for example, that under HPP if a shell had to be acquired for \$15,000 per unit and only cosmetic renovations were carried out totalling \$5,000, low and moderate income households could not afford the rent which would result because of all the other costs involved. However, if the necessary subsidies are pursued and captured, then the rehabilitation costs can increase significantly.

Second, rehabilitation procedures themselves create certain "curves" in the direct inverse relationship between renovation costs and purchase price. For example, if the walls are 50% acceptable and 50% in need of replacement, a seller may reasonably ask a higher price than for a building which must be gutted. However, as labor prices go up, the extra work involved in patching and matching makes such a strategy less viable. Most rehabilitation contractors and designers now prefer total wall replacements if any substantial portion of the walls must be redone. Similarly, a heating system which may be adequate, and therefore help raise the purchase price, may be so inefficient that a decision is made to replace it, even though it could last longer. In cases like these, the sum of purchase price and rehabilitation cost may exceed our average. Nevertheless, we feel that this number is realistic enough for our purposes.

Using the data available to us, we are estimating rehabilitation costs at \$32,000 per unit. This amount assumes virtually gut rehabilitation which, we feel, is necessary because of the need to seek subsidy funds. MHFA data on rehabilitation projects funded in 1978-79 averaged \$32,277.

A more recent South End development in MHFA processing is estimated at \$31,286 in brick and mortar costs. Other estimates we have gathered range from \$25,000 per unit to \$39,000 per unit. Thus, our average rehab cost of \$32,000 per unit is a reasonable estimate for 1980 for the HPP. We have assumed the traditional (and possibly conservative) inflation rate of 1% per month or 12% annually for the construction industries. Acquisition plus rehabilitation costs thus would total \$40,000. We have added an additional 12½% of direct construction costs (\$4,000) to cover architects' fees, financing costs, building permits and other general development costs. The total development price comes to \$44,000 per unit. This is approximately the average Total Replacement Costs for MHFA financial rehabilitation units in 1978-79 (\$44,304). This total is the most important number on the development side of the budget.

#### Operating Costs

- 1) Taxes - We have carried Real Estate Taxes at 28-30% of gross rental income. This is the standard tax arrangement in the city of Boston if no special consideration is made. Under a 12½ tax agreement, if negotiated, taxes would average approximately 15% of gross rental income. We have estimated an average annual increase of 4% for taxes.
- 2) Utilities - This figure is the most difficult to estimate in the operating budget. Current costs vary between \$60 and \$70 per month per unit. We have used \$65 as an average figure. This assumes maintenance of current systems where possible and reasonable. Where replacement is necessary, this estimate anticipates a dual-fuel hot water burner system using gas now but easily convertible to oil as rates and availability vary. We have projected a 12% increase in these rates over the coming years, but even this

unfortunately is probably conservative.

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- 3) Insurance - These are standard insurance rates. It is possible that with a large quantity of units some reduction can be negotiated, but for our purposes full rates are estimated. Inflation is projected at 7% annually in this category.
- 4) Maintenance - Again, we have carried numbers that are approximately equivalent to the MHFA experience. This is an area where some savings may be achieved by judicious hiring, careful supervision, and efforts to assure a low turnover rate in both staff and residents. Annual salary and material costs are expected to grow at about 7% per year.
- 5) Reserve - This category typically includes an amount equal to some small fraction of the total construction cost. In our case, because of the large number of units over which to spread replacement costs, we are using .005 of the direct rehabilitation expenses as an annual set-aside. There is no inflation on this amount. Once established for a particular building it stays constant.
- 6) Management - This item includes the costs of renting units, advertising, performing verifications and reference checks, collecting rents, resolving resident difficulties and handling legal and fiscal matters. This is another area where some cost savings can be achieved with good careful administration. We have installed a rather high number, however, because of our belief that this is the single most critical function in carrying out a successful housing program, particularly under a subsidy program. Inflation is anticipated to be 7% per year.

7) Security - This figure will cover both hardware matters and some personnel. MHFA is increasingly requiring some specific security-related budget lines and we believe this is sensible. 7% is used for inflation.

On the attached sheets we have shown the consequences of these numbers.

Figure 1 shows the annual per unit costs of a full market rate strategy for the HPP in 1980 and in each of the following four years. Some adjustments are necessary to use the table. Once a building has been bought and renovated, for example, the amortization cost stays fixed. Similarly the reserve figure stays fixed. However, all other numbers increase with inflation over the years.

The most important message in Figure 1 is that market rate housing is unavailable to low and moderate income people -- by a substantial margin. If 25% of income is used as a rule of thumb for reasonable housing costs, then the lowest income household who could be served by this program under these assumptions (market rate financing, full taxes, full maintenance and management budgets) is one earning \$47,760 per year. Obviously, people at this income level are not those for whom the displacement fears are greatest.

Figure 2 shows the impact of various subsidy programs on HPP economics. Column(1) shows the market rate costs with resulting rents and imputed income levels. It is the same as column (1) in Figure 1. Column (2) shows the impact of a Chapter 121a/tax arrangement. Taxes are reduced by \$1800 and rents are reduced by \$150/month though the resulting economics still do not make these units available to low and moderate income people.

In column (3) we have shown the combined results of a Chapter 121a tax arrangement and MHFA (or GNMA) financing. This brings rents to precisely the level that we expect Section 8 Fair Market Rents to move to within the next year (see Figure 2 footnote). This means that individuals who live in these units will be able to pay the rents while qualifying for a third subsidy -- the Section 8 Housing Assistance Payment. This subsidy, in combination with a tax agreement and an interest reduction subsidy, will finally bring rents within range of low and moderate income residents, who will pay 25% of their income with HUD paying the rest of the Fair Market Rent.

Column (4) shows how public housing financing would compare with other subsidies. There is no amortization, no return on equity, and virtually no taxes. Residents who qualify pay 25% of income and HUD provides an additional operating subsidy. Eligible households fall within approximately 85% of Section 8 income ranges. This financing arrangement is very advantageous but it brings a number of other administrative and bureaucratic problems, and is therefore shown here primarily for comparative purposes.

FIGURE 1

3 3 5

Annual Per Unit Costs to Acquire and Operate  
Units for the Housing Preservation Program, with no subsidies

**I. Costs to Acquire and Renovate Buildings**

	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
A. Acquisition	8,000	9,000	10,125	11,390	12,815
B. Rehabilitation	32,000	35,840	40,140	44,960	50,355
C. General Development	<u>4,000</u>	<u>4,480</u>	<u>5,020</u>	<u>5,620</u>	<u>6,295</u>
D. Total Costs	<u>44,000</u>	<u>49,320</u>	<u>55,285</u>	<u>61,970</u>	<u>69,465</u>
E. Financing					
1. Loan (90%)	39,600	44,390	49,755	55,775	62,520
2. Equity (10%)	4,400	4,930	5,530	6,195	6,945

**II. Per Unit Costs to Operate Buildings**

A. Management and Maintenance					
1. Full Taxes	3,344	3,726	4,153	4,635	5,165
2. Utilities	780	870	980	1,100	1,230
3. Insurance	80	85	90	100	105
4. Maintenance	540	580	620	660	710
5. Management	420	450	480	515	550
6. Security	50	55	60	65	70
7. Reserve	<u>160</u>	<u>180</u>	<u>200</u>	<u>225</u>	<u>250</u>
8. Sub-total	<u>5,374</u>	<u>5,946</u>	<u>6,583</u>	<u>7,300</u>	<u>8,080</u>
B. Amortization (13% interest; 90% loan 20 year term)	5,570	5,570	5,570	5,570	5,570
C. Return on Equity (15%)	660	740	830	930	1,040
D. Costs of Vacancies (3%)	<u>340</u>	<u>380</u>	<u>425</u>	<u>480</u>	<u>540</u>
E. Total Costs	11,944	13,306	14,833	16,550	18,450

**III. Rents and Projected Incomes Resulting from Costs Above**

A. Monthly Rent Required	995	1,109	1,236	1,379	1,538
B. Imputed Income (Assumes 25% of Income for Housing)	47,760	53,232	59,328	66,192	73,824

FIGURE 2

Market Rate and Various Subsidy Program Economics  
For Housing Preservation Program

I. Acquisitions and Renovation

## SUBSIDIES

	(1) Market Rate	(2) <u>121a Tax Deal</u>	(3) <u>121a Tax Deal &amp; MHFA Financing</u>	(4) <u>Public Housing</u>
1. Acquisition	8,000	8,000	8,000	8,000
2. Rehabilitation	32,000	32,000	32,000	32,000
3. General Dev.	<u>4,000</u>	<u>4,000</u>	<u>4,000</u>	<u>4,000</u>
4. Total	<u>44,000</u>	<u>44,000</u>	<u>44,000</u>	<u>44,000</u>
5. Financing				
Loan	39,600 (90%)	39,600	39,600	44,000
Equity	4,400 (10%)	4,400	4,400	0

II. Operations

## 6. Management

1. Taxes	3,344 (28%)	1,518 (15%)	1,055 (15%)	3
2. Utilities	780	780	780	780
3. Insurance	80	80	80	80
4. Maintenance	540	540	540	540
5. Management	420	420	420	420
6. Security	50	50	50	50
7. Reserve	<u>160</u>	<u>160</u>	<u>160</u>	<u>160</u>
8. Sub-total	<u>5,374</u>	<u>3,548</u>	<u>3,085</u>	<u>2,033</u>

## 7. Amortization

(13%; 90%; 20 yr)	5,570	5,570	3,484	0
(8½; 90%; 40 yr with MHFA)				

8. Return on Equity	660 (15%)	660 (15%)	264 (6%)	0
9. Costs of Vacancies	<u>340</u> (3%)	<u>305</u> (3%)	<u>200</u> (3%)	<u>61</u> (3%)
10. Total Costs	11,944	10,083	7,033	2,094

III. Rents and Imputed Income

11. Monthly Rent Required	995	840	586*	175
12. Imputed Income	47,760	40,320	28,128	8,376

Fair Market Rents under the Section 8 Substantial Rehabilitation Program for 1979-80 are \$488 for a two-bedroom apartment in a walk-up building. If a 7% increase in this limit is assumed for 1980-81, and the 120% "exception" limits are available at that time, then \$627 will be the maximum FMR applicable to these units.

## CHAPTER 3

### SOURCES OF REVENUE

Potential sources of revenue can be captured for a variety of reasons, e.g., equity, debt, seed money, development. This chapter briefly outlines the various revenue sources which, in our judgment, are potentially available to assist in the Housing Preservation Program, indicating how the funds could be used and what the constraints are in capturing them. Chapter 4 will then discuss the financing package(s) and approaches that would be required in order to implement the HPP.

SOURCES, USES AND CONSTRAINTS OF VARIOUS FINANCING OPTIONS

<u>SOURCE</u>	<u>PROPOSED USE</u>	<u>CONSTRAINTS</u>
MASSACHUSETTS HOUSING FINANCE AGENCY (MHFA)	development funds (i.e., acquisition, rehabilitation and general development costs)	technical - program must be financially feasible to MHFA Board and staff political - MHFA unlikely to focus substantial loans or subsidies in impact area because of past commitments and dispersal of funds strategy
MASSACHUSETTS HOME MORTGAGE FINANCE AGENCY (MHMFA)	development funds	technical - focused on individual owner/purchaser of 1-4 family structure, not a CDC owner - lending limit on multi-family property low
PRIVATE LENDERS (under Community Reinvestment Act)	development funds	technical - interest rates too high (13.5%) - only appropriate for market rate units or in tandem with other subsidies
UDAG	development funds, operating funds and administrative funds	technical - leveraging of this project perhaps may not be high enough to be competitive political - priority for neighborhood orientation may stop with Tent City site - unwillingness to link more up-front or long term pay-back dollars from Copley Place

FIGURE 3 (continued)

SOURCE	PROPOSED USE	CONSTRAINTS
PUBLIC HOUSING	development funds and operating funds	political - status of BHA receivership may place priorities elsewhere
		technical - limitation of acquisition and rehabilitation funds (only 146 units for Boston Area Office for FY '80 which are used throughout Massachusetts and Rhode Island)
SECTION 312 (as part of Urban Homesteading or a designated Neighborhood Strategy Area)	rehabilitation funds - subsidized lending rate (3&-20 yrs.) up to \$27,000/unit under standard program (1-4 unit structures) or multi-family program	political - City's priorities for use of 312 (and for urban homesteading demonstration areas) are outside impact area
		technical - allocation of 312 multi-family loans to Boston greatly restricted (4 loans totaling \$514,000 in FY '79, 0 projected for FY '80); simply not enough funds regionally to capture the scale required for this program

FIGURE 3 (continued)

SOURCE	PROPOSED USE	CONSTRAINTS
SECTION 8	<ul style="list-style-type: none"> <li>● Substantial Rehabilitation or</li> <li>● Existing or</li> <li>● Moderate Rehabilitation</li> </ul> <p>operating funds;  <u>substantial rehabilitation</u>  rent subsidies help amortize the development of low/moderate income units for 20-30 years while allowing tenants to pay 25% of income for rent</p> <p>- <u>Section 8 existing rent subsidies or moderate rehabilitation rent</u>  subsidies will support low/moderate income units only where rehab costs are modest; tenants pay only 25% of income for rent</p>	<p>political - City's reluctance to allow more Section 8 units in South End, and in impact area (no part has been a designated NSA)</p> <p>technical - projected acquisition &amp; rehab costs may exceed level required to be amortized by substantial rehab FMRS (even more so for existing Sec. 8 FMRS) - need for additional subsidies to reduce development costs likely</p> <p>- substantial rehab allocation to HUD Area Office in FY '80 only 420 units outside NSAs</p>

FIGURE 3 (continued)

SOURCE	PROPOSED USE	CONSTRAINTS
AETNA PILOT PROGRAM	administrative funds	political - AETNA's focus for the next 15 months is on 6 neighborhoods where program is starting  technical - currently used as training & capacity - building - need for re-structuring to use for either acquisition or ongoing operations
NEIGHBORHOOD SELF-HELP DEVELOPMENT	administrative funds	technical - \$15 million nationally is limited amount - \$150,000 maximum grant per applicant is insufficient
		political - CDCs in impact area have already applied for funds - less likely to receive additional grant for this project

FIGURE 3 (continued)

<u>SOURCE</u>	<u>PROPOSED USE</u>	<u>CONSTRAINTS</u>
COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM	<ul style="list-style-type: none"> <li>development funds and/or administrative funds</li> <li>administrative funds</li> </ul>	<ul style="list-style-type: none"> <li>political - City's priorities focused elsewhere</li> <li>technical - limited CDBG funds for acquisition at any significant level; administrative funds to any degree would be helpful but certainly not sufficient</li> <li>political - HUD's priority areas for research have moved off displacement <ul style="list-style-type: none"> <li>- funds go through City: see above</li> </ul> </li> </ul>
BRA PROPERTY DISPOSITION	receive designation to purchase BRA holdings in impact area	political - BRA priorities unclear vis-à-vis program objectives

It is evident that the financial feasibility of the HPP will require a significant amount of public and private funds from a variety of sources in order to achieve its objectives. The costs of housing today, and in the foreseeable future, create enormous financial problems when attempting to reduce housing expenses to the level of affordability for low to moderate income households. These facts were portrayed in the previous chapter. The result is that this program needs a substantial amount of subsidies in order to achieve its objectives.

In this regard, there are two problems which immediately surface in reviewing the figure above. First, the amount of subsidies required is often disproportionately high in light of the level of funds available from these sources. Second, the political constraints involved in capturing these funds is a major hurdle, as almost all funds to service the HPP must be approved by the City of Boston. However, its priorities for assisting housing appear to be elsewhere than in the Copley Place impact area. Only the BHA is seemingly outside the control of the City, yet any HUD funds to the BHA technically must comply with the City's Housing Assistance Plan or receive a waiver from the Mayor.

The discussion of costs and sources of revenue point up two dominant issues:

- deep subsidies are required such as Section 8 or public housing for rents to be reduced sufficiently

- a variety of sources of subsidy funds and programmatic assistance must be captured to address the problem on the scale discussed in Chapter 1.

These issues will be the focus of the next chapter.

IMPLEMENTATION

We have identified the magnitude of the potential displacement problem, the costs of addressing it in basic detail, and the resources which might be sought in putting together an implementation plan. Our concern now is two-fold: first, the political realities involved in capturing the resources necessary to implement the program at the scale to which we have referred; and second, the administrative strategies required to successfully carry out the program.

## PUBLIC SECTOR ROLE

It must be stated that the objectives of this program should be articulated most appropriately in the public sector; more importantly, they are objectives which can best be met by public sector intervention in the housing market. To a large extent, public sector policies have influenced housing market behavior which has, in turn resulted in the escalating real estate values within the impact area. Urban renewal, tax agreements, land write-downs, State and Federal grants and loans and other public policies have created a more favorable housing climate in the South End and Fenway areas upon which private real estate entrepreneurs and speculators have capitalized. In like manner, public policies such as the Turnpike Authority's lease, the City's tax agreements and HUD's UDAG funds will help create some of the displacement problems associated with the advent of Copley Place.

Therefore, the public sector is the appropriate arena for the creation of new policies to address these negative effects of Copley Place. It should be the goal of the City to maintain a balanced housing stock for all income levels in the impact area rather than to allow trends to continue as predicted which will create a deep division within the housing stock as units become either luxury oriented or subsidized.

While public policies are often the cause both directly and indirectly of displacement, it is also true that the City has the tools and techniques available to intervene in influencing rents, taxes, code enforcement standards, and neighborhood images. Moreover, the City has the responsibility and authority to direct subsidy monies into particular neighborhoods according to its own priorities. In short, the housing program we have been describing is (or should be, in our judgement,) a public policy matter. It absolutely requires the cooperation, if not the initiative, of the public sector for its implementation, not only in allowing the programmatic dollars to flow into the area to help finance the program but in creating the supportive climate necessary to effect the overall objective of a permanent, stable and healthy mixed income housing market in the impact area. If the public sector prefers a homogeneous, upper-middle and upper income neighborhood in the impact area, and is therefore uncooperative in this venture, there is little likelihood that a private entity, albeit a public-spirited CDC, can accomplish the goals it has established.

There is no single, all-encompassing approach which can meet the needs addressed earlier. We foresee no \$30,000,000 financial package forthcoming at rates which will subsidize all the costs required to be reduced. Rather, the approach to be taken by the CDC must be a multi-faceted one, utilizing whatever funding is available and appropriate and in some cases, creating new financing packages as the need arises.

In essence, the CDC must act like a hybrid-form of real estate investor-owner, combining many of the elements of Rolf Goetze's seven owner proto-types\* and adding a few behavioral characteristics, given its community oriented objectives. The process will be an iterative one: that is, every year there will be funding applications to file, political negotiation to undertake and financial deals to transact. In many cases, these steps will repeat themselves or spin-off variations based on previous experiences will continue to repeat themselves.

For example, there are several programmatic options to pursue currently, not one of which will fully address the objectives of the HPP. Only three, however, provide the deep subsidies required, as follows:

1. MHFA

MHFA's lending rates are the most attractive available, even lower than a combined 312 loan supplemented by conventional financing to reach the total per unit acquisition and rehab costs involved. However, MHFA will give extreme scrutiny

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\*Rolf Goetze, "Avoiding Both Disinvestment and Speculation in Private Multi-family Housing," AREHEA Journal, Summer, 1978.

to each building being presented in the package and will be unlikely to finance isolated structures where adjoining properties are not controlled. Therefore, a program of scattered buildings around the impact area is not as competitive as one which proposes adjacent buildings in one block because MHFA wants to protect its investment to the maximum extent possible. The work involved in finding and optioning such properties just to bring them to MHFA for possible funding is extremely time-consuming. Moreover, the chances of presenting a large package are greatly diminished by MHFA's lending criteria. Perhaps 50-200 units might ultimately be financed through MHFA during the four year time frame being proposed. Such an MHFA project would bring its own Section 8 allocation for a certain percentage of the units (the upper limit of which would be subject to negotiations with MHFA, HUD and the City) and would require a 121A tax agreement to be negotiated with the City as part of the package. The combination of these elements as shown in Chapter 2, would enable rentals to be lowered such that Section 8 would enable low and moderate income tenants to afford a certain percentage of the total units. Section 8 subsidies may be available through other sources, such as a HUD Notification of Fund Availability or the 11(b) program with the GNMA Tandem program, but these sources do not appear likely at this point in time. Obviously, the CDC should pursue them in the future if they become available.

One other use of MHFA financing, without Section 8, is discussed under the UDAG section in this chapter. In this model MHFA's loan to value ratio would be about 33%. Because this represents such a conservative lending posture, they might be willing to

finance more scattered units than normally (see UDAG discussion).

## 2. BHA

The BHA, through its court-appointed receiver, might be willing to participate with the CDC on a Turnkey basis in a HUD funded public housing acquisition and rehab program. The CDC could purchase and rehab the units with short term financing from a local lender (perhaps utilizing New England Merchants Bank's recently announced lending policy) which would then be bought by the BHA with public housing funds from HUD. The management could be contracted privately to the CDC or a mutually approved management firm. The public housing subsidies would bring rents down to a level affordable by lower income tenants.

However, the two major constraints in this process are the amount of HUD public housing dollars available for which the BHA could apply, and capture, and the willingness of the BHA to involve itself in such a program, given its own agenda and priorities in the next several years. In this light, one could assume at best, using this approach to finance only 50-150 units during the four year time frame.

## 3. UDAG

Copley Place UDAG funds can become a third source of "deep subsidy" funds; such funds can be channeled to the CDC by the City as from UIDC's annual interest payments on the UDAG loan. Such annual payments to the City should amount to approximately \$2,200,000 (calculating a \$15,000,000 loan at 12%/15 years - terms which we feel are the minimum reasonable terms which the city might negotiate).

These funds would provide the CDC with very flexible funding which could be used for a variety of purposes with a minimum of bureaucratic constraints. In fact, these funds not only represent the single largest source of funds but they become a logical revenue source because they are being used for a development which is causing the displacement problem in the first place.

One scenario for the use of the \$2,200,000 is as follows:

- \$1,750,000 to write down the costs of acquisition and rehabilitation of units
- \$250,000 to operate a CDC leasing program
- \$200,000 to support ongoing administrative costs

#### An acquisition and rehabilitation write-down program

Figure 2 in the preceding chapter showed that a straight, unsubsidized acquisition and rehabilitation program would necessitate rents of approximately \$995/month. If UDAG funds were used to write down the costs of acquiring and rehabilitating such units so that rents would fall in the low-moderate range (averaging \$300/month to the tenant), the total costs of acquisition and rehabilitation (estimated at \$44,000/unit in 1980) would have to be written down. \$300/month, in fact, barely covers the operating costs associated with such a program.

However, assuming a 121a tax agreement and MHFA financing (column (3)), the \$300/month rent level can be achieved by financing \$18,500 through MHFA and writing down the remaining development costs. As development costs increase, the write-down proportion would have to increase as well. Thus the average write-down cost for a four year program would be about \$38,000/unit.

In order to obtain maximum leveraging from the \$1,750,000 annual UDAG pay-back, and to serve programmatic objectives as well, the City should float a tax-exempt revenue bond using the \$1,750,000 to pay it off over 15 years. Allowing \$150,000 annually for service costs, and estimating the interest on

. such a 15 year bond at 10%, the \$1,600,000 remaining could finance a bond issue of approximately \$12,450,000. This money would be made available to the CDC, as needed, to operate its acquisition and rehabilitation write-down program. At this level, about 325 units could be acquired over the four year period.

A CDC-operated leasing program

A leasing program might operate as follows: the CDC finds owners of units currently renting to low and moderate income tenants, without benefit of subsidies. These units undoubtedly are marginal, not completely up to code standards and therefore can benefit from some repairs. However, the economics of the housing market and the behavior pattern of the owners combine to keep these units at the low end of the rent scale without allowing them to fall into an uninhabitable condition. The CDC negotiates with the owner to enter into a long-term lease for the rental units (10-20 years), the provisions of which would enable the CDC to pay the financing charges on a short-term property improvement loan as well as annual cost-of-living increases on the base rent currently being charged.

The owner benefits by having the property improved at no cost -- which reduces maintenance costs at the same time - and by having a guaranteed rent escalation clause over the long term to enable financially carrying the building.

The CDC benefits by controlling moderate income rentals for the long term because any sale of the property will be subject to the lease provision. In addition, the CDC might negotiate a first option to purchase at the time of sale. This type of approach would serve to control the unsubsidized moderate rental units in the impact area without acquiring them. The costs would thus be less than an acquisition and rehabilitation approach. Assuming the average moderate rental unit rented at \$350/month and requires \$4,000 in repairs to

make it decent, safe, sanitary and suitable (without necessarily bringing it totally up to code standards), this leasing program could both reimburse the owner for these repairs ( $\$4,000 @ 16\% / 10 \text{ years} = \$65/\text{month}$ ) as well as provide an annual rental increase (estimated at 9%, a 10 year lease would average  $\$50/\text{month}$  above today's base rent). Thus, the program costs would average about  $\$115/\text{month}$  or  $\$1,380$  annually. A leasing program involving 175 units would thus cost about  $\$250,000$  annually.

This type of program has its own constraints. First, it does not subsidize any low and moderate income tenants directly, although by essentially fixing a rent at current levels, it serves to bring those rents more in line with low-moderate income levels over the next 10-20 years. A tenant paying  $\$350/\text{month}$  today should earn  $\$16,800$  to bring that rent within the 25% of income ratio, but since the leasing program will pay the rental increases for the duration of the long term lease, that  $\$350$  rent in 5-10 years (as tenant's incomes rise) becomes a more reasonable rent level for lower income tenants.

A major constraint is finding owners of non-rent-controlled units (since this program must operate outside the rent control provisions, as does the Section 8 program) who are willing to negotiate long term leases. Using Rolf Goetze's typology of the seven different types of owners, we surmise that such owners can be found, on a limited scale, who have marginal properties, who aren't feeling the pressure of condo converters, and who would appreciate having repairs financed as well as rental increases (and full occupancy) guaranteed.

A few statistics might be helpful as an overall perspective. According to the ERA report, there are 16,768 total units in the Fenway and South End\* (impact area only); 35% are unsubsidized units renting to low and moderate income

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\*We are discounting Back Bay and Bay Village in this calculation.

tenants (5,869 units). 15% are owner-occupied, which leaves almost 5,000 units. An average of about 30% are rent controlled, which leaves about 3,500 units in the category where the leasing program might operate. If only 5% of the owners of these units would be attracted to the program, that would provide the 175 unit program mentioned above.

The UDAG funds, if captured as part of the City's return on the loan, can be used in other ways as well. In certain instances, the purchase of the "development rights" of a particular structure may be a useful strategy. In this instance, the difference between the value of the property calculated on its rental income and the escalated value based on a speculator's rate of return (for converting to condominiums as an example) could be purchased by the CDC. This approach would allow the owner to continue to own the property and to rent to current low and moderate income tenants while receiving a cash payment which could be used for modest repairs. Rent escalations could be more modest, and the incentive to sell would have been removed. If additional subsidies were obtained, rents could go even lower. The CDC would also have a first option to purchase at the time of sale, but in any case, the building could not be converted into luxury units. This program has been operated successfully in rural areas in order to preserve agricultural land, but has not, to our knowledge, been attempted in urban communities. The approach has cost and management problems such that it would be difficult to operate on a large scale. However, it is a strategy which can be applied on a case-by-case basis.

In short, the use of UDAG funds should be kept open and flexible because of the essential need for different strategies in dealing with specific owners and structures on an individual basis. The CDC will have to behave in many ways as a real estate entrepreneur, albeit with a community-oriented purpose. There will be strategies and programs which open up in

the next few years which are not known at this time. Yearly funding from the UDAG pay-back will allow the CDC to capitalize on these new approaches as well as the existing programs discussed earlier.

The fundamental point remains: the approach must be multi-faceted since no one program will provide the revenues or the support to accomplish all the goals of this CDC mission. This report has suggested that the UDAG loan pay-back funds could finance a 500 unit program, 325 units under the development costs write-down component and 175 units under the leasing component. In addition, 150 units should be sought from the BHA under its acquisition and rehabilitation program. The remaining units needed to reach the total program goal of 725 units should be captured utilizing Section 8 funds - units should be captured by whichever avenue they become available. Moreover, UDAG funds, (as well as CDBG funds, Self-Help Development funds, AETNA funds or any other non-categorial source of funds) must be sought in order to finance the administrative costs of the program (estimated at \$200,000 annually). These staffing costs are high given the complexity of the real estate undertakings involved, and they will not be covered out of housing program funds which will only cover management costs, not general development and administration activities. However, should the CDC be successful in acquiring the 325 units discussed above, the syndication proceeds available to it as local general partner in a limited partnership arrangement should ultimately exceed \$91,000. These funds can be used to support the ongoing administrative costs as well as to create more internal subsidies for future housing acquisitions or leasing activity.

ADMINISTRATION

Before the organizations and individuals of the Copley Place impact area can decide on the form which the HPP administration will take, they must decide on its goals and its style. A Community Development Corporation is, by definition, a hybrid organization. It attempts to be economically successful while at the same time functioning as a community based and directed organization. This is an extremely difficult course to chart, particularly in the area of real estate development. The primary options for an operating style are the following:

1. Community Organization

A good community organization is broad-based and keeps information spread about as freely as possible. Board meetings are open and the constituency is urged to attend. Frequent advisory opinions are sought from the membership within its meetings or through polls. Policy issues are decided by the broadest possible body, rather than the smallest. And, above all, communications are such that nothing the organization does comes as a surprise to people it serves.

You could, in theory, administer the HPP in this fashion. Community meetings would help determine the

overall of the program; an Executive Board would determine purchase strategy and general offering prices. Newsletter articles would report on buildings being sought and ones recently acquired. Captains would be kept abreast of activities in their area. While this approach would assure the HPP of general broad neighborhood support, it is not likely to increase the ability to acquire units and particularly to keep purchase prices down.

#### Real Estate Entrepreneur

On the other hand, any private sector real estate entrepreneur who had the same goals as the HPP would follow an entirely different approach. The entrepreneur would establish a number of separate corporations ("straws") to negotiate options and purchase Little if any information about progress would be distributed. Policy decisions would be made as secretly as possible.

sort of behavior will undoubtedly produce some puzzled and angry responses from sellers and neighbors. However, it is likely to result in the lowest prices and the largest possible number of acquisitions.

, we have a classic confrontation between means and ends. Could the coalition of people and organizations concerned about low and moderate income residents of the Copley Plaza area be more concerned about the goal of purchasing 72s or about the style in which they pursue that goal?

Ultimately, we believe the answer to this question must be resolved by the groups involved. However, we feel strongly that, in this case, the decision must be in favor of reaching the established goals. There is no reason to establish an ambitious program like HPP, with all of the enormous resources and energy that it will require, unless you intend to succeed. And the goal is an important, even fundamental, one -- to retain a heterogeneous population in the impact area. In our minds, a strategy which deals realistically with those factors which influence your success in concluding purchases, negotiating low prices, contracting for cost efficient rehabilitation and securing good mortgage terms is the most effective; it need not be unscrupulous.

A middle path may be possible. There are undoubtedly some owners in the neighborhood who would like to cooperate with such a program if they only knew about it. These owners need a place to go to offer their building. Similarly it is worthwhile for people in the area to know that some effort is underway in this respect. It may be appropriate to announce a modest program to be executed by a small, low-key CDC, while at the same time a more ambitious effort is underway behind the scenes.

Whatever is finally decided, we strongly urge that one element of the strategy for the four through seven years be an entrepreneurial real estate operation. This conviction forms the basis for a number of our recommendations regarding the administration of this effort.

### Policy-making

There are a number of broad policy issues about which decisions must be made. What kind of structures should be purchased? What condition should they be in? In which areas should they be concentrated? What general price range should be aimed for? What priorities should be established for tenant selection? How much rehabilitation should be carried out? How much profit should be built into rents?

We believe it makes sense to select a small (3-5 member) policy board to direct this effort, the members of which should be highly respected neighborhood people who are clearly committed to the goals of the project. If these people possessed real estate-related skills, this would be a distinct advantage but it is probably not critical. What is important is that they be able to maintain strict confidence about the work they are doing.

This board would meet periodically to give guidance to the staff, measure progress of the effort and evaluate the success to date. They will need to work very closely with the staff of the HPP and a sound relationship of trust between the Policy Board and senior staff is particularly important in the success of the program.

### Acquisition and Development Operations

As noted earlier, we believe this part of the HPP should not appear as a visible organization at all. In order to be

as successful as possible in achieving the program's objectives, there should appear to be merely three or four new small real estate operators in the area, interested in owning or leasing buildings, but not interested in getting into bidding wars with other firms.

We suggest the following staff:

1 Director/Fiscal Officer	@ \$30,000	=	\$ 30,000
1 Clerk/Secretary (Legal)	@ 15,000	=	15,000
3 Real Estate Officers (Half-time)	@ 20,000	=	30,000
3 Clerk Secretaries (Half-time)	@ 12,000	=	18,000
Legal Counsel (various/ hourly basis)	@ 1,500/ closing	=	52,500
			145,500
Fringes = \$ 93,000 x 20%	18,500		164,000
rent, utilities, materials, supplies @ 25%	41,000		
TOTAL PROJECTED ANNUAL BUDGET .....	\$205,000		

The director/fiscal officer would guide the day-to-day operations of the entire staff. The Director would make final decisions on all purchase prices, terms of offer and other legal and financial matters.

The three real estate officers and their clerk secretaries would work out of separate store-front offices or even out of their homes. These people might even be licensed brokers spending half their time on their own businesses and the other half on HPP activities not as brokers receiving commissions, but as staff negotiating with owners before their buildings are listed.

Legal counsel for this operation is a problem. The least expensive and most consistent way to provide the legal work required for closings, counsel and an occasional law suit is through a staff attorney. However, if the same lawyer begins to appear in every situation involving the program's several real estate officers, the central direction of the program will become more obvious. As a result, our advice is that each of the real estate officers use a fee-for-services relationship with a different lawyer. Some legal advice will be necessary for the director as well, and this is covered in our 25% operations budget.

If the HPP is to operate over a four year period, we estimate that the cost of the Acquisition and Development operation will range from \$205,000 in the year one to \$251,000 in year four, assuming a 7% average increase in costs each year. The cost of this operation should not be borne by rent-paying residents, but must rather be financed out of operating profits or grants. In the early years, profits will be inadequate (if existent at all) and grants are the only feasible solution, as the following figure

FIGURE 4

	<u>Year One</u>	<u>Year Four</u>
Costs of Acquisition and Development Operations	\$ 209,000	\$251,000
Units under Operation	180	725
Acquisition and Development Costs per unit	1,161	346
Profits on Operations per unit (6% on equity)	264	371

Furthermore, if, as we are suggesting, the HPP operates by using subsidy programs, the return of equity will be limited to 6% and will frequently not be available because of unanticipated operating costs, and will be diverted to limited partners if the projects are syndicated. Therefore, grants (UDAG, private, CDBG, etc.) are the only practical option for these costs.

#### Management Operations

The management operations can and should be funded from the operating income streams of the HPP units. Once units are under control, the responsibility for their management should be shifted to a single corporate entity. Volume is critical in the housing management industry and this is particularly true with a stock which is scattered over a relatively broad area in small structures.

Management functions include the following:

- Tenant Selection and Assignment
- Lease Negotiations
- Resolution of Tenant Grievances
- Legal Matters, including evictions
- Advertising, Outreach and Showing of Apartments

- Rent Collection
- Record Keeping and Reporting
- Bill Paying
- Any other task related to the ongoing operation of the units which is not clearly a maintenance function

These tasks are time consuming and sometimes complex. This will be true particularly in the HPP which we believe will need to take advantage of a number of programs, each with different bureaucratic requirements.

We suggest the following staffing pattern:

1 Director of Management/ Fiscal Officer	@ \$ 25,000	=	\$ 25,000
2 Property Managers	@ 20,000	=	40,000
2 Bookkeepers	@ 15,000	=	30,000
3 Clerk/Secretaries	@ 12,000	=	36,000
2 Tenant Service Workers	@ 18,000	=	<u>36,000</u> 167,000
	20% Fringes	=	<u>33,000</u> 200,000
25% Materials, supplies, miscellaneous		=	<u>50,000</u> \$ 250,000

The director/fiscal officer should carry the major responsibilities for overall planning and organization of the management and maintenance effort, supervision of staff and overseeing of financial matters. Legal and reporting tasks would also be carried out centrally. With the multiplicity of programs we envision, and the resulting mass of

bureaucratic forms and procedures, the record keeping and reporting function will be a significant task. Other management functions should be decentralized to two property managers, each responsible for approximately 360 units. These people will carry out tenant selection and assignment functions, lease negotiations, direct supervision of maintenance workers assigned to them, rent collection and resolutions of tenant complaints and grievances.

The two tenant service workers will respond to resident needs and concerns that are not related to maintenance or other strictly housing-based issues. Their primary role will be as facilitators, organizers and referral agents. Direct delivery of counseling or therapeutic services would only be a duplication of the many social services available in the neighborhood and need not be planned.

#### Maintenance Operation

The maintenance operation will be complicated only by two factors. First, the scattered nature of the units will create certain built-in inefficiencies. The time a maintenance person spends travelling from one site to another is time that can't be spent actually repairing or maintaining the structures; this "lost" time must be paid for, either in delays, in repairs, or in overtime salaries.

Second, the widely varied nature of the anticipated housing stock in the HPP means that a larger and more diversified stock room must be maintained. A single 725 unit new development

as only one type of stove, or sink, or furnace, and therefore only one set of parts. Fixtures that must be replaced because of a single broken worn-out part may be a source of replacement parts for other fixtures. In the HPP there may be 250 different models and brands of a single fixture, thus requiring massive stocking procedures. This is costly both because of the reduced opportunity for bulk purchasing of materials and supplies, and also because money tied up in inventory depreciates very rapidly. The PP should deal with this issue by standardizing fixtures and materials whenever possible during rehabilitation of structures it purchases. However, this will not always be possible and the problem must be recognized in budgeting.

A maintenance budget might be structured as follows:

7 Maintenance Workers	@ \$15,000	=	\$105,000
1 Administrative Assistant	@ 15,000	=	15,000
1 Clerk/Secretary	@ 12,000	=	12,000
<hr/>			
			132,000
	20% Fringes	=	26,000
Contract Specialist (electricians, plumbers, etc.)			50,000
Maintenance contracts (elevators, furnaces, etc.)			50,000
Supplies, reserve stock, tools			100,000
<hr/>			
			\$358,000

The administrative assistant to the director of management will carry out all of the centralized maintenance tasks. These include purchasing; record keeping; negotiation of service contracts; selection, direction and payment outside contractors; and approval of bills. This person will not supervise the maintenance people themselves.

Maintenance personnel will report directly to the property manager to whom they are assigned. There should be one maintenance person for approximately each 100 units, though this may vary depending on the number of units within buildings and the clustering of buildings. Work assignments scheduling overtime availability and preventive maintenance responsibilities will be assigned by property managers. Requests for outside contract services or maintenance contract services will be forwarded from maintenance people to the property manager for execution.

The attached organization chart places the information from this section in an overall context. While this is not the only possible organization system, we believe the generally decentralized system is most appropriate for the HPP.

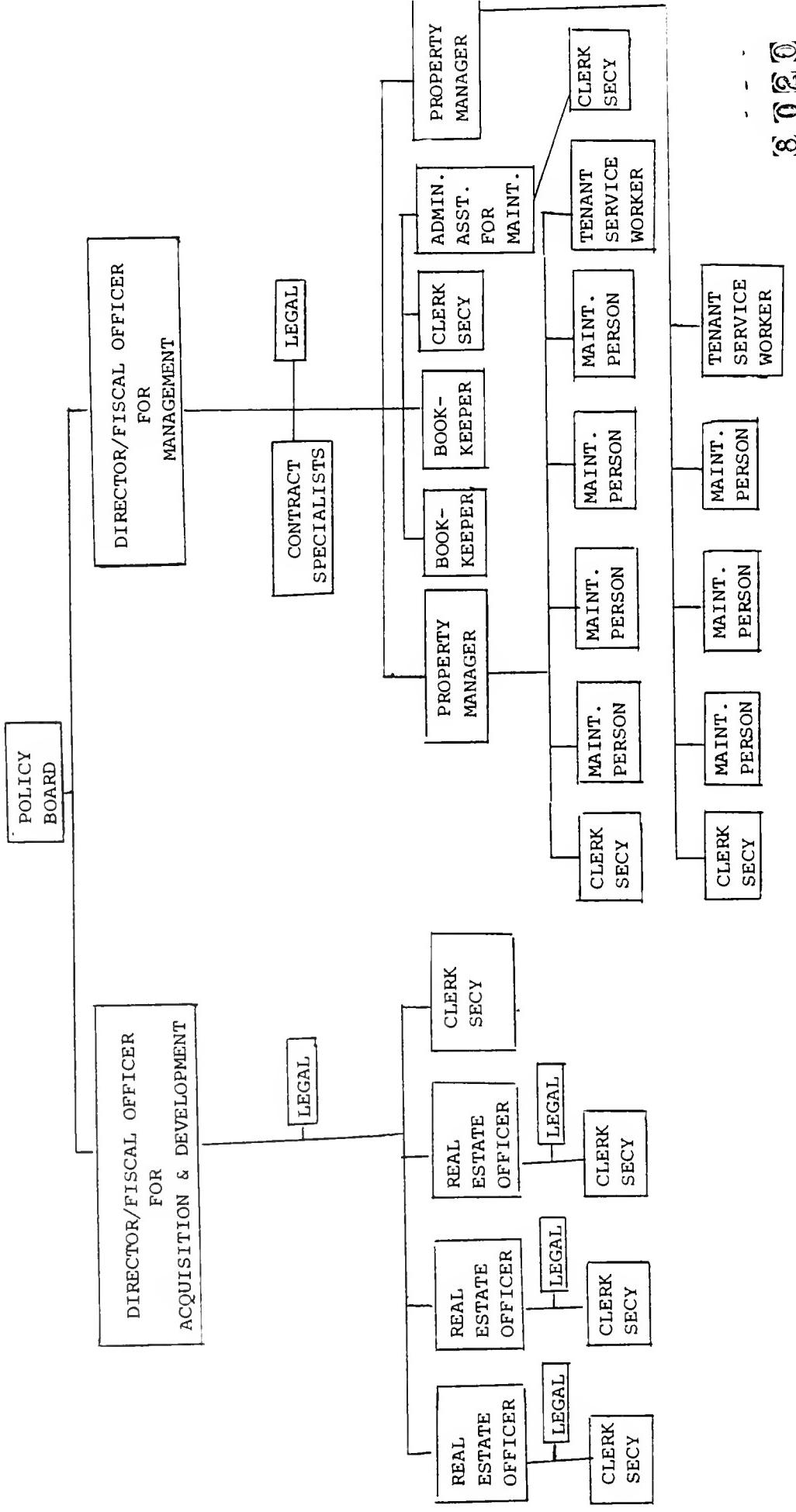
One more comment is necessary. We have generally suggested salaries at the middle or high side of the current range. We do this out of the conviction that community-based organizations frequently believe that they can (or need to) save a few dollars by paying low salaries. This feeling is often reinforced by a sense that people who work for the organization ought to "care" about its goals and therefore be willing to work for less than they can earn elsewhere. Too often, this strategy results in inferior performance and disappointment by the community as well as the constituency - in this case low and moderate income residents.

We recommend another strategy. By starting out with the intention of generating substantial salaries, the HPP

will be able to recruit the very best people available for each task. If neighborhood residents can be hired, this is an added bonus, but the first priority should be the highest caliber staff that can be assembled. Salary is an important (though not the only) factor in recruiting this staff and we urge that substantial remuneration be an element of the Home Bank Program's organizational strategy.

FIGURE 5

## ORGANIZATION CHART HOME BANK PROGRAM



# FenPAC

C-8

Fenway Project Area Committee  
167 Massachusetts Avenue  
Boston, MA 02115/(617) 536-2653

April 4, 1980

Mr. Richard Mertens  
Environmental Review Officer  
Boston Redevelopment Authority  
City Hall  
Boston, MA 02201

Dear Mr. Mertens:

FenPAC, the community-elected planning board in the Fenway, has reviewed the Draft Environmental Impact Statement on the Copley Place Development and has found inconsistencies in the data presented, as well as disagreements with some of the conclusions which were based on this data. Most of our comments are limited to the sections of the report on "Socioeconomics." Because of the possible impact which Copley Place will have on our community, we believe that there should be some response to the questions and comments which we are raising.

We would like to note the following problems with the data used in the section on Socioeconomics:

- Table 6.12-2 states that there was an estimated 7,656 units in the Fenway in 1978. Nowhere is it explained how this number was arrived at. According to the EFFORT Profile, there were a total of 9,221 units in the Fenway. What accounts for the difference in figures? 1
- Table 6.12-2 also states that 40-60% of the units are rent controlled. There is again no explanation for the source of this data. FenPAC believes that significantly less than 40-60% of the units are under rent control. 2

- Table 6.12-4 states that 46% of the non-subsidized housing is occupied by middle and upper income households. FenPAC believes that this figure does not accurately reflect the socioeconomic profile of the Fenway. According to the EFFORT Profile, 72% of all Fenway residents earn under \$10,000. It is thus unlikely that the figure of 46% middle and upper income households is correct.
- Figure 6.12-2 which shows "Trends in Real Estate Transaction Sales Prices" in the Copley Place Impact Area uses St. Stephen and St. Botolph Streets to exemplify market forces in the Fenway. These two streets do not at all typify the trends in market values in the Fenway area and thus it would be erroneous to base conclusions on the socioeconomic impact of the Copley Place development on this figure.

In addition to problems with some of the data which was used, FenPAC believes that some of the conclusions in the E.I.S. are understated. We believe that there will probably be more than a "modest" impact on residential rents and property values in the Fenway. As noted in the E.I.S., the Fenway is likely to "experience pressures which will result in the displacement of some students and elderly." There will also be long-term residents of the Fenway who will not be able to afford to remain in the community as the demand for housing in the area increases. The Copley Place development is sure to add to the displacement problem in the Fenway and have more than a "minimal" impact upon housing.

The E.I.S. fails to adequately address the displacement problem in the communities which will be impacted by the Copley Place development. This development may accelerate the housing market activities which have already created problems in the Fenway and thus make it more difficult for those concerned with displacement to protect the rights of low income residents to remain in the Fenway. As mentioned in the E.I.S., there are community development programs operating in the Fenway, including a land trust and two CDC-initiated housing developments, which are attempting to ease the housing problem in the Fenway. However, accelerated activity in the housing market as a result of

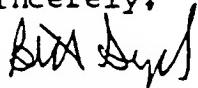
Mr. Richard Mertens

-3-

April 4, 1980

the Copley Place development will make it more and more difficult for these groups to provide housing for low and moderate income residents. Many organizations in the Fenway are concerned about the tightening housing market in the Fenway and the ability of low and moderate income residents to remain in this community. The E.I.S. fails to adequately address their concerns.

Sincerely,



Beth Siegel  
Community Planner

BS:jl

Tent City Corporation  
Old South Church  
645 Boylston Street  
Boston, MA 02116  
April 4, 1980

Mr. Richard Mertons  
Environmental Review Officer  
Boston Redevelopment Authority  
One City Hall Plaza  
Boston, MA 02201

Dear Richard Mertons:

The Tent City Task Force and the non-profit housing sponsor, the Tent City Corporation, appreciate the opportunity to submit the following comments on the Draft EIR/EIS for Copley Place. We have received support and financial assistance from Trinity Church to prepare these comments and have jointly retained as professional consultant Harbridge House, Inc., of Boston.

Over the past month we have extensively reviewed the Draft EIR/EIS and have reached a conclusion that the document does not adequately address the potential negative impacts of the Copley Place proposal.

Specifically, our concerns relate to:

- The inadequate analysis of housing impacts in the Draft EIR/EIS.
- The exclusion in the Draft of a description and analysis of potential displacement of Copley area residents.
- The coordination of planning and design for future development in the Copley area.

We have submitted substantially identical comments to the Massachusetts Office of Environmental Affairs and submit these in compliance with Federal law and regulations to the City of Boston as agent for the U.S. Department of Housing and Urban Development.

We request that you seriously consider our comments and ask that appropriate persons respond to the questions raised for each area of concern as is required by both federal and state environmental regulations.

Yours, sincerely for all concerned,



Elizabeth Seifel  
Executive Director  
Tent City Corporation

cc: John A. Bewick  
Ken Himmel  
Marvin Sifflinger

**Comments Submitted to the City of Boston, Office of  
Federal Compliance Concerning the Draft Environmental  
Impact Report of the Proposed Copley Place Project**

April 4, 1980

Comments prepared by  
  
Tent City Task Force  
Tent City Corporation

Assisted by  
  
Trinity Church  
Harbridge House, Inc.

Comments submitted to the City of Boston, Office of  
Federal Compliance Concerning the Draft Environmental  
Impact Report of the Proposed Copley Place Project,  
April 4, 1980

We do not believe that the Draft EIR/EIS adequately addresses the potential negative impacts associated with the Copley Place proposal on the City of Boston and most particularly in the immediate environs of the site. Specifically, our concerns encompass three primary areas:

- The analysis of housing impacts in the Draft EIR/EIS.
- The exclusion in the Draft EIR/EIS of a description and analysis of potential displacement of Copley area residents.
- The coordination of planning and design for future development in the Copley area.

Each area is addressed separately in the following pages. Some questions are limited in nature and concern confusing or mistaken assertions in the Draft EIR/EIS. Others are broader in scope and regard areas generally ignored by the preparer of the report/statement. We look forward to seeing the responses of the preparer to these questions.

## THE ANALYSIS OF HOUSING IMPACTS IN THE DRAFT EIR/EIS

The questions which follow relate to the analysis of housing impacts which appears in the Environmental Report and in the special study prepared by Economics Research Associates (ERA), entitled Residential Property Value and Rent Analysis for Copley Place Development. This analysis principally concerns a specially defined impact area consisting of the Back Bay, Bay Village, South End and Fenway neighborhoods. A broader area of housing impact is suggested although not documented in the report.

Specific questions relate to:

- Assumptions made in defining the impact area.
- Assumptions made apportioning jobs at Copley Place to (a) households in the impact area, (b) resident versus newcomer households in the impact area.
- Omission of consideration of turnover in housing of workers at Copley Place.
- Possible miscalculations of relative impacts of Copley Place on housing demand.
- Contradictions in statements regarding scheduled opening of facilities at Copley Place, and hence, regarding the presumed period of impacts on housing in the impact area.
- Implications of selective inclusion of certain census tracts.
- Assumptions about maturation of housing market.
- Description of housing impact from Copley Place.
- Effect of increased supply of affordable housing.
- Effect of decreased supply from conversion of residential properties to commercial use.
- Impacts on housing demand outside the defined impact area.

### Definition of Impact Area

1. In the ERA report, criteria for defining the impact area were based on "neighborhood proximity to the proposed project" (page 6). Proximity was determined on the basis of 15-minute walking distances from the site of Copley Place. What evidence is there that such a walking distance is accurate and appropriate for this determination? I-1
2. Why was use of public transportation, such as MBTA subway lines, not used in defining the impact area? Why wasn't the impact area determined on the basis of 15-minute commuting times for walking and public transportation? I-2

3. Why was the impact area defined in such a way that ERA states that "the largest impact upon the housing market as a result of Copley Place will occur outside the impact area" (page 1). Shouldn't the impact area be so defined as to encompass most of the projected impact? I-1

#### Apportionment of Jobs

4. The ERA study indicates that 41 percent of the workers at the Prudential Plaza live within walking distance of their place of work, and that 29 percent of the employees in the Prudential Tower live within walking distance (page 64). I-1
- (a) Given these data, why was it assumed that only 19 percent of the Copley Place work force would live within walking distance of the proposed development?
- (b) Given these data, why was it assumed by ERA that only 40 percent of Copley Place workers would live anywhere in the City of Boston? Why was this assumption made given the developer's commitment to hire 50 percent of Copley Place workers from Boston? Does the ERA analysis indicate that Copley Place workers would be forced in the long-term to move from the city?
- (c) If in the long-term Copley Place workers would be forced to move from the City of Boston to suburban areas, why were the effects of this housing displacement not addressed in the EIS?

5. Given the experience of the Prudential Center, isn't it reasonable to expect that at (at least in the short-term) 35 percent or more of the workers at Copley Place would seek to live within walking distance of the proposed development? I-1

6. If 35 percent or more of the Copley Place work force sought to live within walking distance of the proposed development (at least in the short-term), wouldn't this add greatly to the direct demand for housing in the impact area calculated by ERA? I-1

7. The ERA report revised downward its estimate of additional demand for housing from Copley Place due to hiring of residents already residing in the impact area. How did ERA differentiate between jobs which would be held by long-time residents of the impact area and newcomers? I-1

#### Omission of Consideration of Turnover

8. ERA calculates an increase in demand for housing in the impact area by comparing estimated total demand for housing with Copley Place to estimated direct demand for housing of Copley Place workers and their families. When the baseline demand was estimated, turnover in housing among existing households was included as a component of total demand. No similar element was included, however, in calculation of housing demand by workers at Copley Place. Why was this element omitted in these calculations? I-1
9. Wouldn't there in fact be turnover in housing among the Copley Place work force reflecting both labor turnover and housing moves? I-1

Isn't the housing turnover among low income and relatively unskilled workers (retail, service, hotel and office clerks), such as the majority of the workers who would be employed at Copley Place, higher than the average for the population due, in part, to high rates of labor turnover?

(I-10)

Using the 25 to 35 percent turnover rate used by ERA on page 68, turnover in housing of Copley Place workers would add a housing demand of approximately 200 to 300 by the end of the five-year period in which ERA calculates Copley Place workers would seek housing, as shown below. Wouldn't this provision for turnover double the housing impact of Copley Place in the fifth year?

(I-11)

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Increase in Initial Demand for Housing	200-210 <sup>a</sup>	200-210	200-210	200-210	200-210
Increase Due to Housing Turnover	-	50-75	100-150	150-225	200-300

<sup>a</sup> See page 70 of the ERA study.

1. Including provision for turnover in the housing taken by workers at Copley Place, wouldn't average annual demand for housing due to the proposed development rise to 400-510 units compared to the 200-210 units estimated by ERA?

(I-12)

#### Possible Miscalculations

1. ERA calculates the relative impact of Copley Place as the percentage of total demand for housing with Copley Place that direct demand from Copley Place workers would represent. Don't the National Environmental Policy Act, P.L. 91-190, and Chapter 30, Sections 62 through 62H of the Massachusetts General Laws, require that impacts be analyzed relative to conditions without the proposed action? Why wasn't this done?
1. Isn't it true that when direct demand for housing from Copley Place workers is shown relative to total baseline housing demand, the percentage change in demand caused by the proposed development would be 13 to 17 percent, rather than the 11 to 15 percent shown on page 70 of the ERA report?
1. When provision is made for turnover in housing of workers at Copley Place, isn't it true the percentage change in demand caused by the proposed development would rise to 32 to 33 percent, rather than the 11 to 15 percent shown on page 70 of the ERA report?

(I-13)

(I-14)

(I-15)

#### Contradictions in Argument

1. Why did ERA assume that housing impacts would be felt gradually over a five-year period when Figure 4.2-1 of the ERA shows a construction schedule in which all major facilities at Copley Place would open in the course of a 14-month period?
1. Given this staging of the project, wouldn't initial hiring of workers by Copley Place employers mostly occur during the 14-month period, or winter 1983 to spring 1984?

(I-16)

(I-17)

18. Since ERA reduced its estimate of direct housing demand due to Copley Place to take account of workers already living in the impact area, why would housing impacts be delayed beyond the 14-month period? I-18
19. On page 67 of the ERA report it states "people will wait to see if they like the new job before moving." How long a wait would be expected in the majority of cases involving low income and relatively unskilled workers? I-19

### Selective Inclusion of Census Tracts

20. The ERA report indicates that, in the impact area, "rents and property values have increased to the point where they are comparable if not greater than the suburbs" (page 3). Is this statement true for all parts of the impact area? I-20
21. The ERA report gives estimates average monthly rent levels and vacancy rates for September, 1979 in three parts of the impact area (page 41). The Fenway portion includes one census tract in the impact area. The Back Bay portion includes two census tracts. The so-called "South End/Bay Village including St. Botolph" portion includes ten census tracts. Why was such an unbalanced division of the impact area made? I-21
22. What, if any, differences can be found in housing conditions between streets in the so-called "South End/Bay Village including St. Botolph" portion of the impact area? In particular, differences between census tracts 703 and 706; 707 and 708; 704, 705, 709; 804, 805, 806. I-22
23. Is it really true that census track 709, which is in the impact area and is bounded by Camden Street, Washington Street, Rutland Square and Tremont Street, has average month rent levels property values which are below the average for Boston suburbs, as suggested on page 3? I-23

### Maturation of Housing Market

24. Has housing in the entire impact area matured? If so, why is there such an uneveness of housing costs and vacancy rates in different subareas? I-24
25. To what extent has the area matured? I-25
26. Why is condominium conversion increasing so quickly if the area has matured? I-26
27. What areas are ripe for speculative demand? If one believes that housing markets in areas influence other housing markets as they reach different levels of maturity, then is Lower Roxbury, Roxbury and Jamaica Plain the prime areas at present for speculation? Given that they are near the Southwest Corridor would these suffer from increased demand and therefore speculation in great amounts? I-27

re of Copley Impact

While it is true that there are a great many variables that influence the price of housing, why wasn't that of Copley Place described and qualified in more detail according to:

(I-28)

- (a) The nature of the impact in the area cited by the study as the focus of impacts, namely, South End census tracts 707 and 708 running from Dartmouth Street to Mass Ave along the Southwest Corridor.
- (b) The price inducements that would be caused by increases in real estate values such as were associated with Water Tower Place in Chicago.
- (c) The effective increase in demand for housing in the area even if people cannot afford it (they will still demand housing even if they end up living elsewhere).
- (d) If the assumption that demand would be minimized in the area because people could not afford to live there, why wasn't this demand ELSEWHERE clearly identified?

Could this scenario occur? The South End areas nearest Copley would rapidly escalate in price because of implicit property value increases due to their proximity to a \$305 million luxury retail complex? That increased demand for housing would occur first in these areas but as they became increasingly unaffordable would move out along paths of development; i.e., the Southwest Corridor? Would the Fenway and Lower Roxbury areas feel both of these impacts?

(I-29)

Vision of Affordable Housing

The Prudential Center included 780 apartments. What would happen if Copley Place included similar provisions for housing of the same type? What would happen if more AFFORDABLE housing options were provided such as:

(I-30)

- (a) Tent City.
- (b) Rehabilitation of existing buildings owned by the BRA and the City of Boston for occupancy by lower to moderate income households.
- (c) A condominium moratorium was indefinitely extended.
- (d) More mixed income developments were planned for vacant parcels of land in the impact area, and eventually along the Southwest Corridor.
- (e) Rent control is extended/terminated.

In sum, how would an increase in supply of housing affect the demand characteristics of Copley Place?

## Conversion of Properties from Residential to Commercial Use

31. No analysis is provided in the ERA report of potential impacts on residential properties in the impact area in terms of conversion to commercial use. The Prudential Center has a shadow effect on nearby residential properties, leading to the transformation of upper Newbury Street into a business/commercial strip with spillover changes on other streets. Would Copley Place have similar impacts on streets in the South End, further diminishing the housing supply?

## Impacts on Housing Demand Outside the Impact Area

32. The ERA report indicates that the largest impacts on housing from development of Copley Place will occur, as noted on page 1, "in neighborhoods where the prevailing rent structure is more commensurate with the salaries of the projects' (sic) employees, the majority of whom will be non-professional." What are these neighborhoods, and how large are the impacts they would feel? I-3
33. The ERA report also indicates that the housing impacts of Copley Place would spread throughout the city "particularly in areas along existing MBTA routes" (page 1). Which areas along which routes would be most affected? I-3
34. No specific mention in its impact analysis is made by ERA of the relationship of the relocated MBTA Orange Line (which will have a stop at Copley Place) to housing impacts of the development. Wouldn't housing impacts be likely to occur in neighborhoods served by the Orange Line? I-3
35. The ERA report indicates that, in the impact area, "rents and property values have increased to the point where they are comparable if not greater than the suburbs" (page 3). Is this true of neighborhoods along the Southwest Corridor which would be served by the relocated MBTA Orange Line? I-3
36. Would the combination of the opening of Copley Place and the relocation of the MBTA Orange Line have any implications for housing demand and real estate development in neighborhoods along the subway route? I-3
37. The ERA report mentions that the peculiar geography of Boston results in parts of the City of Cambridge being closer to the Copley Place site than most of the City of Boston. Since Cambridge is entirely outside the 15-minute walking distance used to define the impact area, what meaning for the housing market does this proximity have? Is consideration being given to use of public transportation? On what basis? I-3
38. The ERA report mentions that parts of the City of Cambridge are closer to the Copley Place site than most parts of the City of Boston, the specific example given being Boston's waterfront. Which parts of Cambridge would experience impacts? To what extent would these parts of Cambridge be affected? I-3

EXCLUSION IN THE DRAFT EIR/EIS OF A DESCRIPTION AND ANALYSIS  
OF POTENTIAL DISPLACEMENT OF COPLEY AREA RESIDENTS

According to statements made in the introduction of the Draft EIR/EIS, the City of Boston has assumed lead agency responsibility for the preparation and issuance of the EIR/EIS pursuant to Section 104(h) of Title 1 of the Housing and Community Development Act and HUD regulations 24 CFR 58.27 and 40 CFR 1501.5. Accordingly, the City is obligated to fulfill all environmental review responsibilities for this project as federal funding is being sought from the Department of Housing and Urban Development in the form of a \$19,724,000 Urban Development Action Grant. Under an amendment to the Housing and Community Development Act in 1978, the federal government is obligated to insure that "in the administration of housing and community development programs, consistent with other program goals and objectives, involuntary displacement of persons from their homes and neighborhoods should be minimized." We are concerned that neither the developer nor the City of Boston--which as lead agency assumes the federal obligation--has given adequate attention to this federal requirement in preparing the draft EIR/EIS.

In HUD's report on Displacement (February 1979) such displacement is defined to occur when "any household is forced to move from its residence by conditions which affect the dwelling or its immediate surroundings and which:

- (1) are beyond the household's reasonable ability to control or prevent
- (2) occur despite the household's having met all previously imposed conditions of occupancy, and
- (3) make continued occupancy by that household impossible, hazardous or unaffordable."

(Definition prosed by George and Eunice Greer, reprinted on page 5 of HUD Report.) On the next page of this report five kinds of displacement that result directly and indirectly from the administration of federal programs are defined. The third, or so-called "secondary" displacement is "associated geographically with Federal or Federally assisted programs (e.g., CDBG and DAG programs)." Shouldn't the potential occurrence of "secondary displacement" have been investigated in this EIS?

Inclusion of Consideration of Displacement in EIS/EIR

- Although we would have expected that the socioeconomic section on Residential Property Value Impacts should have dealt with this potential problem, nowhere in the EIR/EIS has the word "displacement" even been defined. We could find no mention of displacement in the body of the document and could find only one reference to displacement in Table 4-3 on page 53 of the ERA report. In this matrix, which summarizes baseline impact area trends, ERA states that for the "non-subsidized rental" markets of both the Fenway and South End areas displacement will continue and/or increase due to the upgrading of housing units. On the following page in Table 4-3, is this displacement projected as decreases in the percentage of unsubsidized units occupied by lower to middle income households and retired persons?

III-1

2. If so, is it correct to assume that over 6,000 low to middle income households will be displaced from the Impact Area? As Table 4-3 indicates, approximately:

2,500 households will be displaced from Back Bay  
2,000 households will be displaced from South End  
1,500 households will be displaced from Fenway.

(These approximations are implicit in the percentage changes referred to in the chart.)

3. Why with a description of such major amounts of displacement was there no attempt on the part of the consultant to qualify and quantify this displacement as a direct and indirect result of Copley Place?

#### Obligation of Applicant

4. It is our understanding that the applicant for funding under the H & CD Act (the City of Boston as applicant for receipt of UDAG funds) is required to "mitigate adverse effects" which may result from a program thus funded. In particular, the applicant is required to "take appropriate steps to minimize such displacement or hardship" as will be endured in particular by "low and moderate income residents" (as required in HUD regs 24 CFR 570.32). Is the City of Boston preparing a separate policy paper on how it intends to minimize displacement? Should this be included within the EIR/EIS?

5. As HUD regulations 24 CFR 570.304(b)(2) require that the applicant include in its community development plan the actions to be taken to "assist low and moderate income persons to remain in existing locations when they prefer to do so and to mitigate adverse affects on such persons as a result of neighborhood revitalization activities," why was this year's HAP plan not attached to this EIS as an appendix?

6. Is it correct that as the HAP plan is presently written, there is no provision for the allocation of Section 8 units in the two areas referred to by ERA as the major areas of impact by Copley Place, South End Census Tracts 707 and 708?

7. What would be the housing impact of Copley if appropriate numbers of Section 8 units were allocated to the area?

#### Characteristics of Residents who Face Displacement

8. Displacement is usually defined according to the characteristics of the person being displaced. As the EIR/EIS indicates that the socioeconomic characteristics of each neighborhood differ, as well as those of each subpart, why was there no detailed socioeconomic description of those who face displacement?

9. For example, what percentage or numbers of the elderly populations of these areas face displacement? What percentage or numbers of families?

What racial groups associated with what household types?

II-10

servation of South End as an Integrated Area

The South End neighborhood is referred to by policy planners and urbanologists as one of the few Boston neighborhoods where integrated living is possible. At present, according to recent Consensus surveys, the total South End population is extremely diverse. However, indications are that increasingly a pattern of segregation has been occurring over the past two decades as middle to upper income white households move into the area replacing much of the neighborhood's lower to moderate income and minority population. Was this trend considered in ERA's analysis?

II-11

If Copley Place serves to reinforce this trend, is this not an important adverse impact of worthy consideration?

II-12

The Consensus survey data indicates that this pattern of segregation is experienced unevenly across the South End neighborhood, with the areas to the north becoming predominantly white and middle to upper income, while southern and western areas are still occupied by greater numbers of minority and lower income households. The two census tracts that are rapidly beginning to change from largely minority and moderate income to largely white and upper middle income are those referred to as the major impact areas of Copley Place, Census tracts 707 and 708. Without Copley Place what might happen in those areas? Is there the potential to mitigate some of this segregation through appropriate programs?

II-13

Is the induced increase in real estate values associated with such a large scale multimillion dollar project likely to be a factor which further accelerates this trend?

II-14

Description of Displacement Resulting from Conversion of Units

In the Retail Impact Analysis, Larry Smith and Associates note that commercial spin off from the project will occur in areas along major pedestrian and traffic routes of the impact area, such as Dartmouth Street. Will this retail spin off result in the conversion of existing uses into more intensive commercial uses? Isn't it likewise possible that residential property will be converted to commercial use in areas zoned for such activity?

II-15

Along what commercial corridors is it likely that displacement of small business will occur?

II-16

Along what commercial corridors is it likely that displacement will occur of area residents as a direct result of such induced conversion of residential to commercial units?

II-17

THE COORDINATION OF THE PLANNING AND DESIGN OF FUTURE DEVELOPMENT  
IN THE COPLEY AREA

Copley Place will only be successful if it is developed in harmony with the present and future environment of the Copley area. The EIR/EIS and present design plans do not adequately discuss the coordination of the Copley Place project with the two other major development proposals for the area-- Tent City and the Southwest Corridor. We would contend that such coordination is essential to assure long range, holistic development. The coordination of the planning, design, and construction of these projects could result in some definite benefits for the area and help to minimize potential negative impacts associated with Copley Place. Some questions that need to be addressed in terms of coordination are as follows:

1. How would the simultaneous development of Copley Place, Tent City and the Southwest Corridor help to minimize long-term neighborhood disturbances related to construction? In particular, are impacts in the areas of noise, traffic, air quality, aesthetics, and socioeconomic best limited to a short time frame rather than an extended period? Wouldn't it be better that all three projects proceed together?
2. Isn't coordinated planning and design of Copley Plaza and Tent City important from a public safety standpoint? Many of the buildings surrounding the proposed Copley Place site, including those on Tent City, rest upon wooden pilings that are structurally dependent on the maintenance of the existing water table. Shouldn't more consideration be given to the potential impact from the excavation of the Copley Place site on the planned development of the Tent City site?
3. Wouldn't coordinated planning and design of Copley Place, Southwest Corridor Project and Tent City help preserve the historic integrity of an area known for its historic landmarks? The visual impact of the three major developments should be considered in an holistic manner to insure environmental quality. In addition, wouldn't the development of a coordinated construction schedule for all three help to assure that redevelopment will not in any way damage these landmarks (particularly through the exposure of two-hundred-year-old wood piling systems)?
4. In the area of efficient energy design, couldn't all projects benefit from an in-depth analysis by engineers specializing in alternative energy conservation and generation? Testimony presented at the Public EIR/EIS hearing (3/20/80) indicated that the Tent City site could provide suitable space for large underground recapture systems to serve the energy storage needs of Copley Place. In addition, the integration of the heating and cooling systems for the commercial and housing development on Copley Place with those of Tent City could result in the conservation and utilization of waste heat through a district heating plan. Isn't exploration of such cooperative arrangements necessary to achieve cost efficiency of all projects and to the conservation of our state's dwindling energy resources?

Isn't there a special requirement for such design integration of the three above-mentioned projects in applying for state and federal funding assistance? Effective investment of our tax dollars can be assured only through proper planning and coordination at the front end thus avoiding delays and cost overruns during the construction process. Isn't there a need for coordination of all concerned public bodies to achieve a plan which can address the potential impacts of all projects and better capitalize upon the interrelationships of their designs.

(III-5)

not balanced budget with the  
new industry

Dear Mr. Morton,

(1) These plans become clear  
in 1 forward to better life  
and in providing a visualization  
of what will happen by this  
kind of project. This  
will bring an result of this  
project.

(2) The plans to supply  
energy to Copley place do  
not incorporate contempary  
technology and would be  
much more cost to Boston  
than current estimates.  
This will allow.

I would like to see  
further refinement of

1. Change a city view of Boston  
and the Back Bay. I think  
I am not opposed to development  
here, I do not feel that  
the Copley place development  
is fully thought out. At this  
point it would not be a positive  
addition to the city.

My concerns are, more

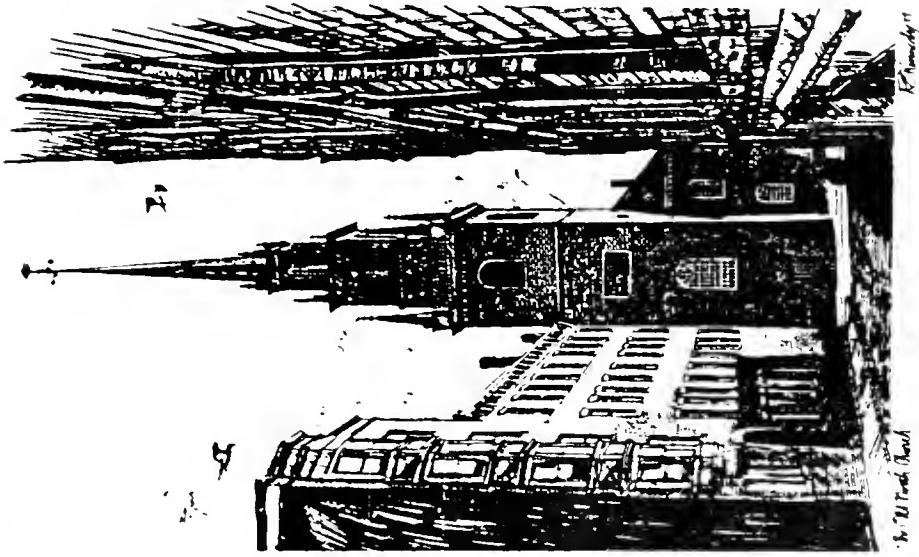
specifically:

(1) The visual aspects of  
Copley place are aesthetically  
unpleasant. The project does

No place in here away  
before proceeding with  
construction

Sincerely,

Stephen French  
221 Beacon St #2  
Boston Mass  
02116  
266-4644



#### The Old North Church

THE OLD NORTH CHURCH was the parish of Paul Revere. Since 1723, its uncommonly beautiful steeple - which has been replaced twice - has graced the skyline of the historic North End. In it were hung the legendary lanterns that signalled the march of the Redcoats. It is the oldest church in Boston; a number of patriots are buried below. Episcopal services are still held here.

Kennedy Studios Inc.  
401 Pin Street Boston, Mass. 02114

Robert W. Richards  
114 Dartmouth St.  
Boston, Mass 02116

March 22, 1980

Richard B. Mertens  
Environmental Review Officer  
Boston Redevelopment Authority  
City Hall, Rm 948  
Boston, Mass 02201

Dear Mr. Mertens

I am submitting the following comments relative to the socio-economic sections of the Draft Environmental Impact Statement prepared for the Copley Place Project.

It is interesting to contrast two environmental impact studies prepared within one year of each other and both focusing, in part, on housing conditions in the South End. In the Spring of 1979, the BRA released its EIS related to the closeout of the South End Urban Renewal Project. In summarizing the results of the 13 year renewal project, the report states:

The BRA claims it has done much towards realizing the renewal goal of maintaining a mixed income population in the South End. The BRA mentions two facts to support this claim. First, recent statistics show that the South End retains a large minority population of approximately 50% despite 12 years of urban renewal. Second, the median income of the South End has remained low despite the influx of middle class families. The median income in the South End was \$7,000 in 1977... (South End Environmental Assessment, EIS, 1979, p.7)

Although it is well known that many of the Boston Redevelopment Authority's claims to successes in the South End Urban Renewal Project are rather exaggerated, the conclusions as stated above are totally divergent from the conclusions of the present EIS Housing Study done by ERA. Here the argument is made that "Copley Place workers will not keep pace with the rising costs of real estate ownership" or rental housing in the South End (ERA Study, p. 75). ....

While the BRA postulates that urban renewal helped to maintain a stable mixed income population in the South End, the ERA study assumes that by 1985 the South End will house in the private market only upper

income families and that people of lower income, such as those who will work in Copley Place, will not be able to afford South End housing costs.

It does seem like something is amiss when two housing studies can contradict each other so completely. If anything, the ERA study for the present EIS, excludes any assumptions that would demonstrate the displacement effects of Copley Place. It does recount the displacement effects of the Prudential and John Hancock developments during the last two decades. However, in a sudden reversal of logic it relieves Copley Place of any potential significant displacement effects because other so-called forces are displacing lower income people. This argument is put forth despite the BRA's argument last Spring that the South End is a viable, mixed income community.

How can the ERA study discount the struggles of our community to maintain a mixed income community? How can it neglect to mention even once the potential effect of Copley Place on people of color living in the South End? How can it project in such a cynical fashion that the "maturation" of the South End housing market discounts any potential displacement effects of Copley Place?

Many of us in our community have been active in the Citizen Review Process to the Copley Place Project. During this process we requested that an honest housing impact assessment be done in relation to this project. Our concept of such a study was one that did not try to rationalize and minimize what are the obvious potential displacement effects of this project, but genuinely assessed the impacts that need to be confronted.

The housing study done for the Draft EIS is a sham and does a tremendous disservice to our community.

To cite examples, we asked that "sensitive" pocket areas in surrounding neighborhoods be assessed of future impacts of the project. What was included in the study was a postscript which pointed out that the Dartmouth St. to Mass Ave. area is a "sensitive" area. There is no analysis of the population in this area, that it is an area where predominantly Black families and elderly reside who would be most affected by displacement impacts of Copley Place. There was no analysis of the impact that has already become apparent on the Tent City site just by anticipation of Copley Place.

Finally, the ERA housing study did provide some valuable data concerning the level of permanent jobs to be generated by Copley Place. What the study documents is that over 70% of these jobs will pay far below the annual salary needed by a family of four to live in the City of Boston. 61% of the jobs will pay less than \$14,000 a year in today's dollars.

In the end, the request by the Copley Place developer for \$20 million of federal subsidies borders on the obscene. The project will create jobs that will not pay enough for indigenous families to continue to live in their neighborhoods.

3

4

The Copley Place Project has lost its viability in our neighborhood. It is too massive, out of proportion to our neighborhood, and will generate negative wind and visual impacts that were only superficially treated in the Draft EIS. The office and retail components are totally out of character to our neighborhood and the Copley Square area.

Ultimately, the biggest insult this project presents to the South End community is the tremendous energy and resources that has been poured into this \$315 million project while the Tent City housing development, a \$16 million project has been stymied. We must ask serious questions about where are our priorities and who benefits from the expenditure of our tax monies.

Until the Copley Place developer and public officials present an honest assessment of the negative impacts of this development and provide for concrete, positive steps to ameliorate and reduce these impacts, Copley Place is wrong for my neighborhood and wrong for my city.

Sincerely,

Robert W. Richards



Comments on Draft Environmental Impact Statement for Copley Place Energy

I. General Conclusions

The Fenway Energy Organization is a community-based group which has been working since 1978 for affordable safe energy and for a local energy plan based on renewables. The Fenway Energy Organization (F.E.O.) is especially concerned with energy's impact on low-and moderate-income city dwellers. Therefore, F.E.O. has a keen interest in Copley Place, since an ill-conceived energy system for such a large development can wipe out the efforts of hundreds of citizens of Boston and of the Commonwealth, efforts directed at building a rational energy structure. Moreover, a badly thought-out plan for Copley Place can mean almost intolerable utility costs for the rest of the citizenry. The burdens of the energy problem must be borne fairly by all. For these reasons, F.E.O. regards Copley Place's energy choices as public matters requiring public discussion and responsible cooperation by the developer.

Over the past months, F.E.O. has held numerous meetings and consulted with several energy experts regarding Copley Place. Some of these experts have contributed directly to these comments.

F.E.O. Position

1. The proposed project is not now energy-efficient by any standards that relate to our national energy problem. The project represents a wasteful drain on nonrenewable, expensive, and scarce resources. Specific points and questions regarding the multiple inefficiencies present in the proposal will be put forth in Part II of these comments.
2. The project as proposed tends to give the suppliers of energy and local utilities the grounds to increase their fixed capacity, which means disproportionate capital expenditures, particularly in a time of high inflation. F.E.O. considers it to be particularly irresponsible to buy utility electricity for space heating in the project.
3. It is essential that the proposal embody life-cycle costing, which allows comparison with renewable energy and with the efficiencies and cost advantages of cogeneration, (to be discussed in Part III of these comments).
4. It is essential that the proposal embody a comprehensive conservation-productivity plan as regards energy, something that has not yet been done.

5. The project must be tied in its energy efficiency to a  
Tent City Development which meets the needs of the community.  
Part II of this report will embody specific energy questions  
for which we urgently seek answers.  
Part III outlines the advantages of cogeneration for this project.

(5)

F.E.O. wishes to be a constructive force and offers its cooperation. But without agreement on the points of the F.E.O. position stated above, points which are concerned with the national energy crisis and the providing of safe affordable energy to the citizens of Boston and Massachusetts, F.E.O. cannot support the Copley Place proposal.

Fenway Energy Organization

Robert Case  
Ellen Caracciolo  
Marianne Crocker  
Rosaria Salerno  
Z. Smith (Physics, MIT)  
Ambrose Spencer  
Sam Znaimer (Chem. Eng. MIT)

Part II. Technical Considerations and Questions Regarding Multiple Energy Inefficiencies

Overview

It is appropriate that the public be involved with the energy planning for so major a project as Copley Place, for several reasons. First, the project's developers are requesting \$19.7 M in UDAG grants and a Section 121A tax accommodation--direct public contributions to an ostensibly private development project. Moreover, as has been alluded to in the opening statement made by F.E.O's Robert Case, the public shares a large part of the burden of increased energy consumption in the international ramifications of increased dependence of foreign oil, in the health and safety ramifications of increased use of coal, and in the environmental and economic costs of nuclear power, acting as it has as a tax on the previous generation which paid for its development with public funds and a tax on future generations which must pay for waste disposal and plant decommissioning.

Thus, while it may be in the developer's best interest only to consider energy conservation measures with a two or three year payback time, it is in the public interest to minimize the total energy cost of the project--utility costs plus conservation measures--spread over a considerably longer period. In fact the "utility costs" factor in this equation must be adjusted considerably upward twice--first to include public subsidies to these utility costs, and second to take into consideration just what these utility costs will be ten years from now. In short, we must not allow today's deceptively low energy costs to leave the public with more white elephants.

Many of the easiest methods for increased energy efficiency applicable during the construction phase are the most difficult to implement once the building is complete.

Yet even beyond these considerations of energy economics, it seems that the developers have overlooked many of the simplest of conservation technologies which at little or no cost are available today and which would pay back well within the desired three year period.

Wherever possible, our suggestions have been specific as to both costs and benefits. However, due to the ambiguous nature of the EIR and the unwillingness of the developers (at this time) to divulge even the most basic pieces of information as regards energy planning, some of our suggestions do lack hard numbers. We emphatically request and look forward to working with project engineers on these issues.

The government has made it clear that all new construction projects are obliged to carefully consider the impact upon the consumption of scarce energy resources. The E.P.A. strongly recommends that all Environmental Impact Statements include a section devoted to energy conservation. We are disappointed that the Copley Place developers have chosen to honor this responsibility only with lip-service. The few conservation measures suggested on two sparse pages (7-159 and 7-162) of the EIS are bland and undetailed; they betray a lack of insight and concern that runs contrary to the national will and explicit public policy. The developers have included in the EIS a breakdown of the project's energy requirements. However, as presented, this information is wholly inadequate. For an intelligent assessment to be made, we require a breakdown of energy consumption not by fuel type but by end use. The breakdown of electricity usage into lighting, air conditioning, compressor operation, etc. would go a long way in helping us to analyze the adequacy of the Copley Place development. Clearly, such data were gathered in preparing the EIS. We insist that the developers share this information. Further, we recommend that the responsible agencies (EPA, State Office of Environmental Affairs, BRA) require such breakdown in all future Environmental Impact Statements.

1. Why hasn't life-cycle costing been performed for Copley Place's energy consumption needs?

Perhaps the reason is clear. Life-cycle costing would support the energy program that minimized the cost of energy consumption for the overall project. The developer, committed only to short term profits, could care less about the high costs tenants will incur years from now. They cynically reject financially sound alternatives in order to hold down the cost of their capital investment. This is banditry, pure and simple. The developers intend to gather their profits in the first few years and run. The project's tenants who will be paying astronomical heating bills and the people of Boston should not allow themselves to be ripped off so easily.

In the EIS the developers commit themselves to fulfilling the energy conservation section of the Massachusetts State Building Code (Article 22). This lenient code will soon be superceded by the Building Energy Performance Standards (BEPS) to be promulgated within the year by DOE and HUD.

2. Will Copley Place satisfy the BEPS requirements?

The articles of the new Standard are available in draft form. Are the builders familiar with the provisions which will affect Copley Place? What revisions in project design will be made in order to comply with the more stringent requirements of the new law?

We are appalled by the lack of concern shown for proper conservation.

3. How much and what sort of insulation will be used to minimize heat leaks? What sort of glass will be used for the windows? Will the glass be heat reflective or light reflective? Will it be double paned?

Back in the days when energy costs were low, large buildings were designed so as to require simultaneous heating and cooling. The outer skin of the building where people lived and worked required heating in the winter. But the inner core where heavy machinery was located and which was insulated by the outer section was air conditioned year round. Commercially

available systems can integrate complementary heating and cooling needs and decrease the total energy consumption. For example, horizontal ducting can be used to channel hot air away from the core out to the building skin where it can supplement other heating sources.

4. What will Copley Place do to integrate its cooling and heating systems? Or will it continue a pattern of waste and exorbitance?

(10)

#### District Heating

A district heating system tieing Tent City to Copley Place is a cost efficient means of improving Copley Place's energy efficiency. It would require virtually no capital investment on Copley Place's part nor could normal operating procedures be disrupted.

(11)

The system is especially simple if Copley negotiates for hot water storage on the Tent City site. But even if this arrangement isn't made, no innovation is required. Copley Place will produce a great deal of waste heat from air conditioners, compressors, and the like year-round. As well, after its use, steam will be reduced to hot water. On average this "waste water" will remain at a temperature of about 125°F. Ordinarily, this "waste water" would be diverted to a cooling tower and then dumped in a sewer. Under a district heating system the water's residual heat would not be wasted. Rather, the water would be collected and pumped over to the Tent City Project where it could easily fill the tenant's residential heat and hot water needs.

This district heating proposal is known to the Tent City Task Force. They are familiar with the requirements (piping, storage, back-up, etc.) this system would likely impose upon site development. But, unlike the Copley Place developers, have shown a commitment to energy conservation. As part of a coherent and cost-efficient program of energy conservation, they are considering the implementation of various energy alternatives, including district heating. Copley Place should look to its neighborhood and learn the meaning of public responsibility. It should join with Tent City in conserving energy and conscientiously developing the Boston of tomorrow.

## Solar

Copley Place is to be situated on a 9.5 acre site. To get a rough idea of the availability of solar energy to the project, one may use the average figure of 1500 BTU/ft<sup>2</sup>/day striking a horizontal surface during the heating seasons (early October through late April) in conjunction with an average clear sky probability of 45-55% (National Weather Service) to arrive at net availability of 750 BTU/ft<sup>2</sup>/day. Thus incident on the 9.5 acres would be a total of

$$(9.5 \text{ acres}) \times \frac{(43,560 \text{ ft}^2)}{\text{acre}} \times \frac{(750 \text{ BTU})}{\text{ft}^2 \text{ day}} \times \frac{(210 \text{ day})}{\text{heating season}} = 6.5 \times 10^{10} \frac{\text{BTU}}{\text{heating season}}$$

Now the projected annual steam usage quoted in the EIR is  $212.9 \times 10^6$  lbs. While it is hoped that this figure could be significantly reduced via methods discussed in previous and subsequent sections, it is interesting to note that, using the standard heat content of steam (quoted by Boston Edison Steam Division) of 1000 BTU/lb, we find

$$\frac{\text{solar incident}}{\text{heating demand/yr}} = \frac{6.5 \times 10^{10} \text{ BTU/season}}{(212.4 \times 10^6 \text{ lbs}) \times (1000 \text{ BTU/lb})} = 30\%$$

This estimate ignores the fact that the high-rise hotels shade Copley Square in the winter months, which implies that the project receives more than its horizontally incident share of solar energy, while it also ignores the fact that not all of the 9.5 acres is able to utilize the incident solar radiation. Nevertheless, this ballpark estimate shows that solar energy can not be ignored as a supplemental heating source.

## Active Solar Heating

Active flatplate water heating collectors are enjoying a rapidly expanding market. A rough estimate of their cost-effectiveness is useful to have on hand. First we calculate the cost/BTU of oil heat using the estimate widely quoted for 1982 fuel oil of \$2.00/gal

$$\frac{\$2.00/\text{gal}}{0.70 \text{ burning efficiency}} \times 140,000 \frac{\text{BTU}}{\text{gal}} = 2 \times 10^{-5} \frac{\$/\text{BTU}}{} \quad (1)$$

Now, using the ASHRAE figure of 2100 BTU/ft<sup>2</sup>/day for the available solar radiation (year-round average) for a solar collection at 45° inclination, and the mean direct sun of 50% in Boston (National Weather Service) we have

$$\text{annual} \quad \frac{(2100 \text{ BTU})}{\text{ft}^2 \text{ day}} \times (.50 \text{ clear}) \times \frac{(365 \text{ days})}{\text{daytime}} \times \frac{(.55 \text{ typical})}{\text{year}} \times \frac{(.45)}{\text{efficiency}} = 2.1 \times 10^8 \frac{\$/\text{ft}^2 \text{ day}}{}$$

$$\text{heating season only} \quad \frac{(1500 \text{ BTU})}{\text{ft}^2 \text{ day}} \times (.50 \text{ clear}) \times \frac{(210 \text{ days})}{\text{daytime}} \times \frac{(.45)}{\text{htg. season}} = 7.1 \times 10^4 \frac{\$/\text{ft}^2 \text{ day}}{}$$

where typical warm weather and cool weather efficiencies were used. Using the industry average figure of \$30/ft<sup>2</sup> collector installed

$$\begin{aligned} \text{active solar domestic water heating} &= 1.4 \times 10^{-4} \frac{\$/\text{BTU yr}}{} = 7 \text{ yr payback} \\ \text{space heating} &= 4.2 \times 10^{-4} \frac{\$/\text{BTU yr}}{} = 21 \text{ yr payback} \end{aligned}$$

Thus active solar should only be considered as a possibility for domestic water heating, unless some kind of annual storage were available, able to store heat in summer for winter use. A more important limiting consideration is that such collectors might only be considered architectually appropriate for rooftop applications, and with an estimated rooftop area of 130,000 ft<sup>2</sup>, total available solar collected energy would be limited to

rooftop-available

$$\text{active solar domestic water} = (130,000 \text{ ft}^2)(2.1 \times 10^5 \text{ BTU}/\text{ft}^2 \text{ yr.})(.7) = 1.9 \times 10^{10} \text{ BTU/yr.}$$

$$\text{active solar space heating} = (130,000 \text{ ft}^2)(7.1 \times 10^4 \text{ BTU}/\text{ft}^2 \text{ yr.})(.7) = 6.5 \times 10^9 \text{ BTU/yr.}$$

Furthermore, much of the need for domestic water heating could be alleviated by the use of the waste heat content of the hot water left after steam heating or air conditioning. Hence, active solar heating is not strongly advocated.

#### Passive Solar

Passive solar heating is characterized by simplicity of construction and operation-it should require little or no energy to operate. Energy enters the building via southern facing windows and is stored either in "thermal mass"-concrete wall, floor or ceiling structures-or phase-change materials such as the modified Glauber salts used in MIT Solar Building 5. Each of these items needs to be considered in more detail.

#### Heat Mirror Glass:

13

We have been able to determine no information concerning the type of glazing planned for Copley Place, but considering the fact that most of the exposed surface of the project will be glass, its' energy performance becomes an important matter. In the past ten years, much work has been done on glass which reflects most of the sun's energy away, to reduce air conditioning costs. Such glass does, however, throw away much of the available solar heat again in winter. While this elimination of natural energy flows makes the heating engineer's job easier, by requiring less horizontal ventilation, it overlooks the possibility for greater energy savings. What is needed is a glazing system which blocks heat flow (i.e. reflect infrared radiation of wavelengths greater than 3 microns) in both directions at all times, and can pass visible light (i.e. transmit radiation with a wavelength of less than 1 micron) on winter days but pass only a small fraction of this during summer days.

One approach to such a glazing system is to use heat mirror (Indium-Tin-Oxide-coated) glass, in tandem with reflective adjustable "venetian blind" louvers, as shown in the figure below.

This system has a resistance to heat flow value  $R=5.6 \text{ ft}^2 \text{ hr.}^\circ\text{F/BTU}$ , as compared with  $R1.8$  for conventional double pane windows and  $R1.0$  for conventional double pane glazings. In mass production quantities, the ITO coating for the double glazed windows adds  $\$1/\text{ft}^2$  and the louvers (absolutely necessary only for southern windows) add  $\$2.50/\text{ft}^2$ .

ITO-double pane, louvered:

Heat loss

$$(5634 \text{ }^\circ\text{F-day/yr Boston})(24\text{hr./day})(1/5.6 \text{ BTU}/\text{ft}^2 \text{ hr.}^\circ\text{F}) = 24,000 \text{ BTU/yr.ft}^2$$

Solar heat gain(southern windows only) during heating season  
(750 BTU/ft<sup>2</sup> day)(210 days/heating season)(0.60 transmission)=94,500 BTU/yr.ft<sup>2</sup>

single panel visible light reflective

Heat loss

(5634 °F-day/yr Boston)(24 hr./day)(1/1.0 BTU/ft<sup>2</sup>hr.°F)=135,000 BTU/yr. ft<sup>2</sup>

Solar heat gain(southern windows only) during heating season

(750 BTU/ft<sup>2</sup>day)(210 days/heating season)(0.10 transmission)=15,800 BTU/yr.ft<sup>2</sup>

To calculate the cost-effectiveness of these alternatives, we need to know the cost of steam on electric heat quoted the developers. From this analysis, we assume it will fall somewhere between 2¢/kw.hr.= $5.8 \times 10^{-6}$  \$/BTU and 2\$/gas oil= $2 \times 10^{-5}$  \$/BTU.

	<u>cost/ft<sup>2</sup></u>	<u>R</u>	<u>Southern Net energy gain BTU/ft<sup>2</sup>yr.</u>	<u>N,W,E</u>
A. ITO DOUBLE-PANED, LOUVERED (southern)	c+\$3.50	5.6	+70,500	-24,000
B. ITO-DOUBLE PANED, NOT LOUVERED	c+\$1.00	5.6	-----	-24,000
C. STANDARD DOUBLE PANE REFLECTIVE	?	1.8(est.)	-59,000	-75,000
D. STANDARD SINGLE PANE REFLECTIVE GLASS	?	1.0(est.)	-119,000	-135,000

Thus, for southern windows, system A. would save  $[70,500 - (-59,000)] = 129,500$  BTU/ft<sup>2</sup>/yr over conventional double glazing C., with a cash value of \$0.75 to \$2.60/ft<sup>2</sup> corresponding to a payback period of two to five years.

For N,W,E windows, B. would save  $[-24,000 - (-75,000)] = 51,000$  BTU/ft<sup>2</sup>/yr. saving \$0.30 to \$1.00, corresponding to a payback period of one to three years.

The summertime light reflective properties of A and D are assumed the same, but A will lead to greater savings due to its high thermal resistance during the air conditioning season. Savings would be greater if A were compared with single pane glass.

The calculations above are intended to show that passive solar deserves a closer look than the one-sentence dismissal given in the EIR. They do not take into account all factors, such as how the intermittent nature of solar energy would change Copley Place's load factor and hence its utility rates.

Another question is that of heat storage, which might be needed to temper the interior spaces from large day/night temperature shifts, to maximize solar utilization. This question is discussed in the next section.

## Heat Storage

The heat storage capacity of the concrete normally used in construction of

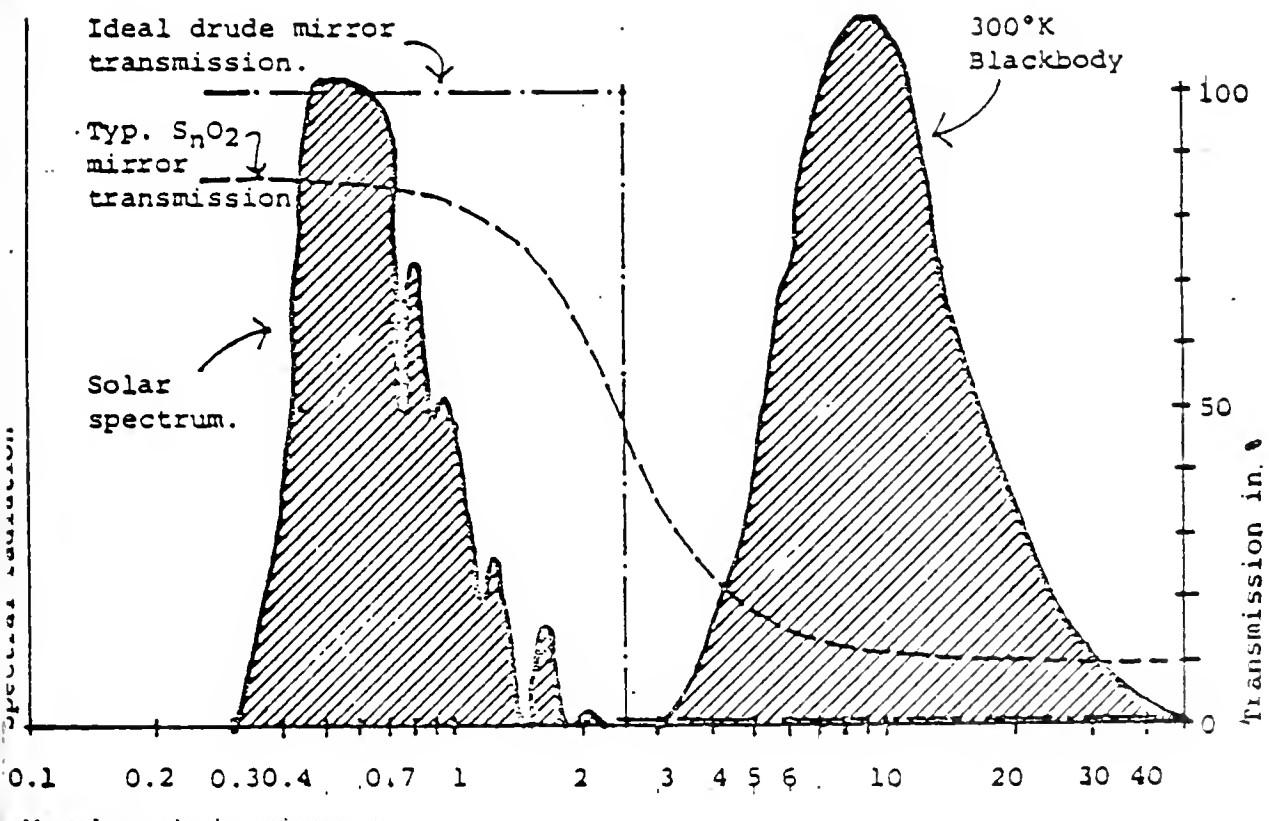


Figure 10. Heat Mirror transmission characteristics.

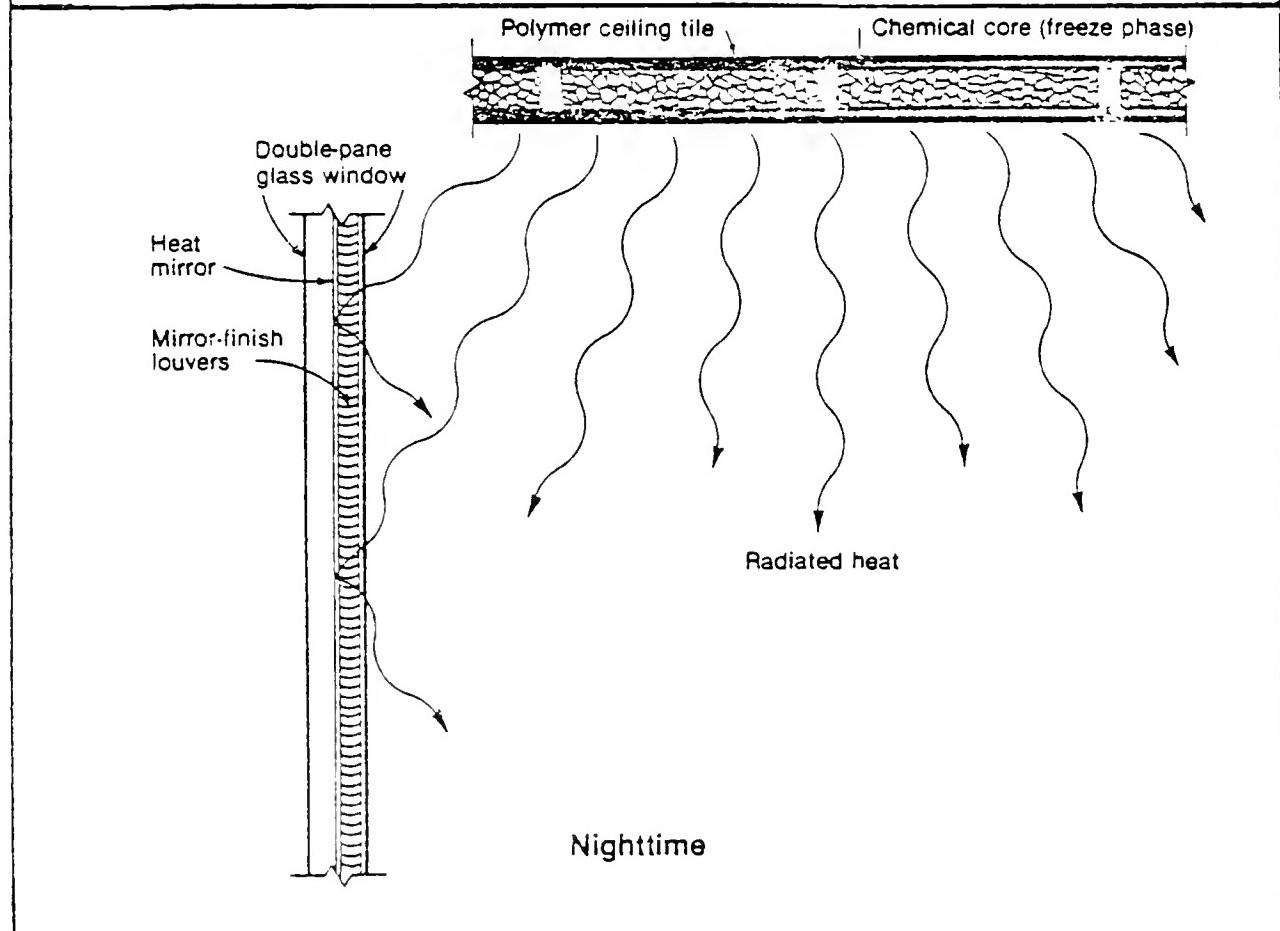
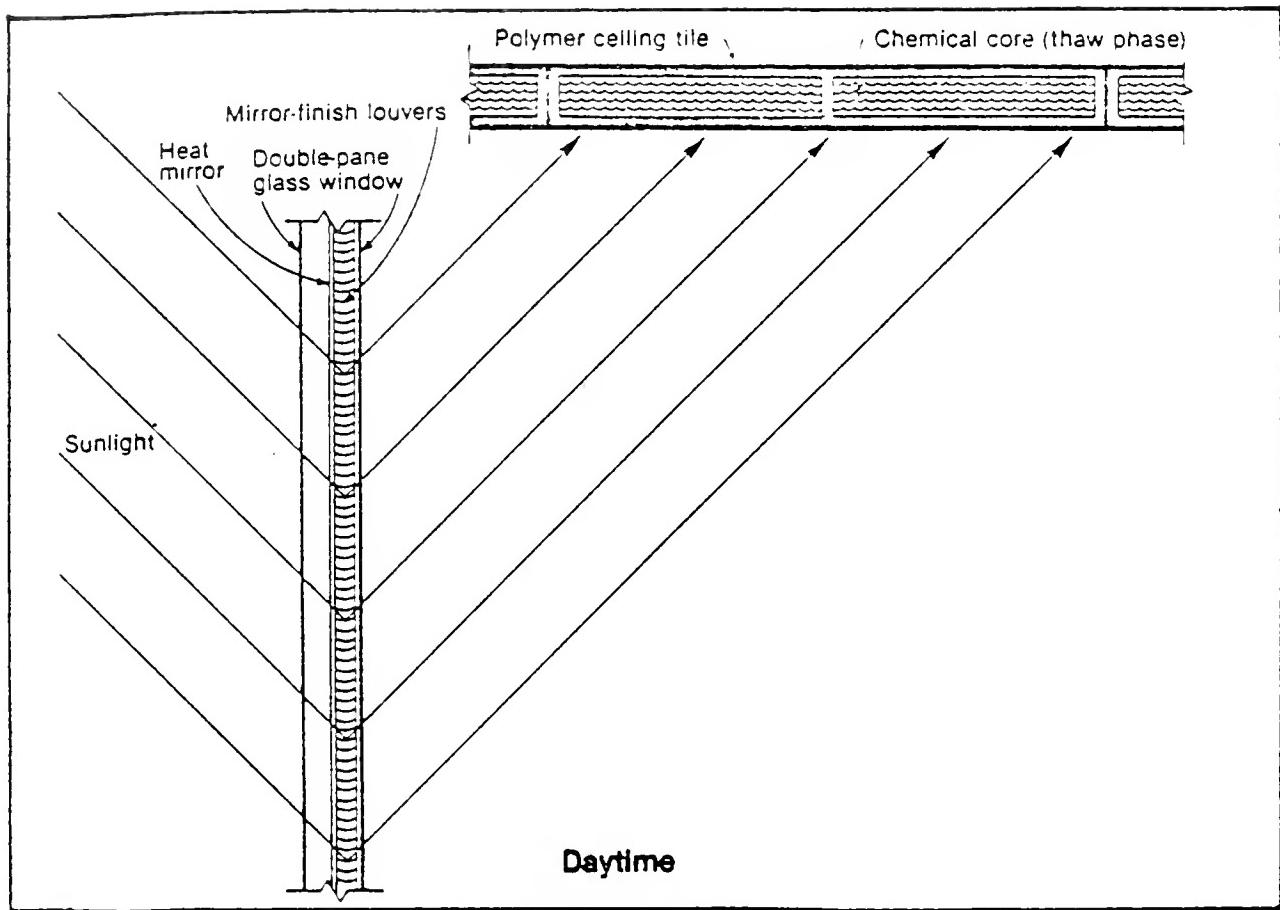


Fig. 5. Wall section/Ceiling section

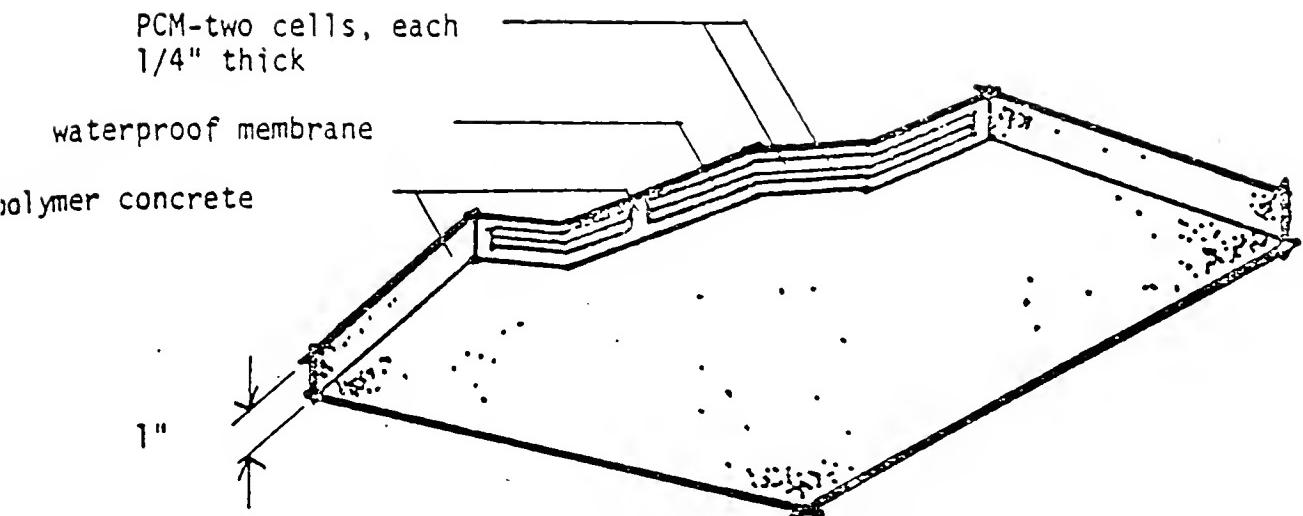


FIGURE 14. SOLAR CEILING TILE CONSTRUCTION

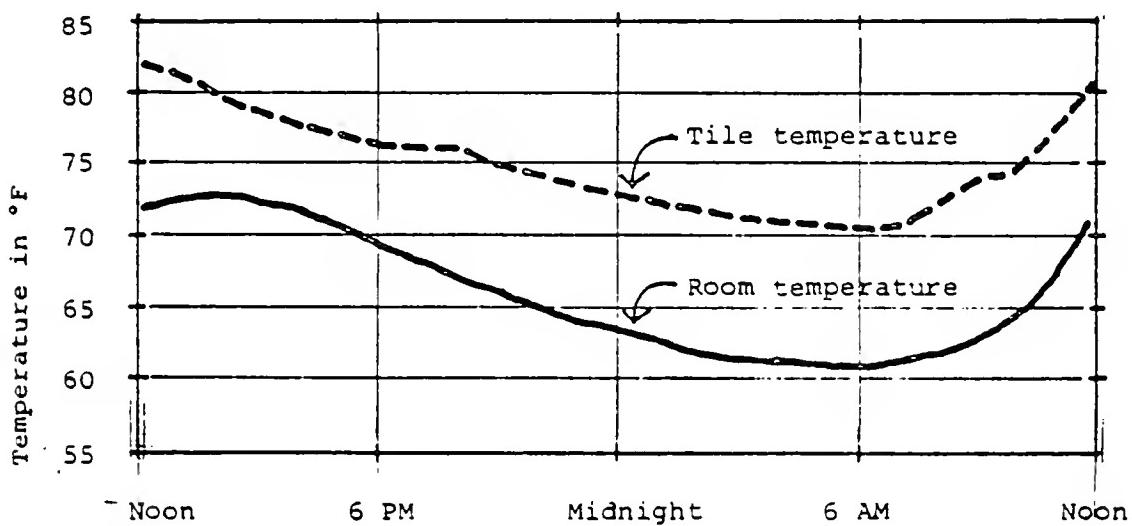


Figure 15. Tile and room temperature for Feb. 25-26, 1978.  
( 90% sun. Average outdoor temp; day - 41.5°F,  
night - 32.2°F).

the floors of Copley Place could not be calculated directly, since the thickness and areas of these floors and ceilings was not known. The heat capacity of concrete over an acceptable temperature saving of 5° F is 160 BTU/ft<sup>3</sup> or 1.1 BTU/lb. It is assumed that this component of storage would not be the most promising one due to the builders desire to minimize the weight and cost of concrete, especially in the high-rise hotels.

Instead, we suggest the builders look at phase-change salts as a way of reducing both heating and cooling costs. For purposes of illustration, we discuss the Sol-Ar-Tile system produced by the company of that name in Detroit, Michigan. This system uses a modified Glauber salt to store heat (220 BTU/ft<sup>2</sup>) over a solid-liquid phase change which occurs at a temperature which may be set at the time of manufacture (73° F is a typical choice). Their operation is simple. As the room heats up during the day, the temperature of the air near the tiles is allowed to rise to 73° F, but no higher, until all the salts have melted. At night, as the room cools naturally, the salts freeze when the air below the tiles cools below 73°, returning the heat pumped into them in the daytime.

These salts store 33 BTU/lb (as compared with about 1 BTU/lb, for concrete over the same 5° F saving) and in the design discussed, each tile weighs only 11 lb/ft<sup>2</sup> (the salt itself comprises only 6 lb/ft<sup>2</sup>) so weight concerns are minimized.

In production lots of 10,000 square feet or greater, the price of these tiles is estimated at \$3/ft<sup>2</sup>.

Now if only solar heating is being considered, it may turn out that adequate cross-ventilation from the southern parts of buildings to the northern parts may obviate the need for storage. To make this estimate, total southern-facing glazing would have to be known, a figure not at our disposal. But if time-of-use rates come into existence as Boston Edison is contemplating, these heat storage tiles could afford considerable savings, by being operated "in reverse" during the summer, by freezing the tiles at night (when rates are low) and allowing the salt to melt in the daytime.

We note in passing that if Copley Place's total square footage (commercial and residential and hotel) = 2,000,000 ft<sup>2</sup>, these tiles would represent a storage of  $4.4 \times 10^8$  BTU, or roughly half of the day's heating consumption in the original EIR, so some sort of heat or cold storage pond placed under the Tent City development might prove well worth investigating.

#### Summary of Questions

- Q1. What is the total glazed area? What fraction is of southern exposure?
- Q2. What glazing was used to calculate heating and cooling loads?  
What are its R-value and transmission characteristics?
- Q3. What is the planned air-change rate? Will air-to-air heat exchanges be used to recover heat content of exhausted air?
- Q4. Is all of the heat content of the steam used in the heating processed, or is some waste heat left which must be dumped?  
Is the domestic hot water heated with this waste heat, or is it to be heated directly with steam?
- Q5. What is the square footage of the hotels and the residential units?

## Electrical Consumption

As discussed above, the question of whether Copley Place chooses to go with the originally planned mixture of steam, gas and electrical energy or instead with the all-electric plan which the developers disclosed was under consideration at a recent Citizens Review Committee hearing, is of tremendous import to the citizens of Boston. Simply put, the mixed source plan implies use of the nearby fossil fuel facilities, since the steam must be produced locally, while the all-electric plan implies nuclear-generated energy. This distinction is forced by thermodynamics, since only 35% of the heat value of the fossil fuel is converted to electricity, BTU for BTU electrical resistive heating would always be about two to three times more expensive than the steam heating produced by the same (nearby) plant. Even heat pumps would barely break even, since they move (on the average) two to three BTU's for every BTU electric consumed.

While a private developer cannot be asked to take on a portion of the publicly shared cost of nuclear generated electricity, we would simply point three things:

1. The notion that Pilgrim II would be completed by 1985 (as claimed by the EIR) is absurd.
2. The project, accepting public grants and tax accommodations as it is, is not completely "private".
3. The political factors which make nuclear generated electricity cheap could very well change rapidly in the next 5 to 10 years. If the full costs (5-7¢/kwhr) are reflected in the price of the electricity, the economics of all all-electric project could change rapidly.

If time-of-use rates are implemented, some kind of wintertime heat storage and summertime cool storage system, either in the form of phase-change tiles or in the form of a water-storage tank under some portion of the adjacent Tent City housing development.

### Questions

- Q6. Please give a breakdown, by end-use of electrical and steam consumption, that is, divide use into the categories space heating, domestic hot water, space cooling, refrigeration, internal ventilation fans, pumping, lighting, etc. 20
- Q7. What were the prices quoted the developer under both the mixed source and all-electric plans? Do any other factors enter into the decision of which plan will be used? 21
- Q8. Over what period are these energy costs expected to remain "stable"? 22
- Q9. In the choice between electric and steam heating and cooling, has the effect of time-of-use rates been taken into account? What provisions for storage have been made under the electric option? 23

### Part III Advantages of Cogeneration

Sources: Cogeneration: Its Benefits to New England, Final Report of the Governor's Commission on Cogeneration.

Data plotted from Table 4 - I on page 81  
Commonwealth of Massachusetts, October 1978  
Document #1500 - 9 - 78 - 150509

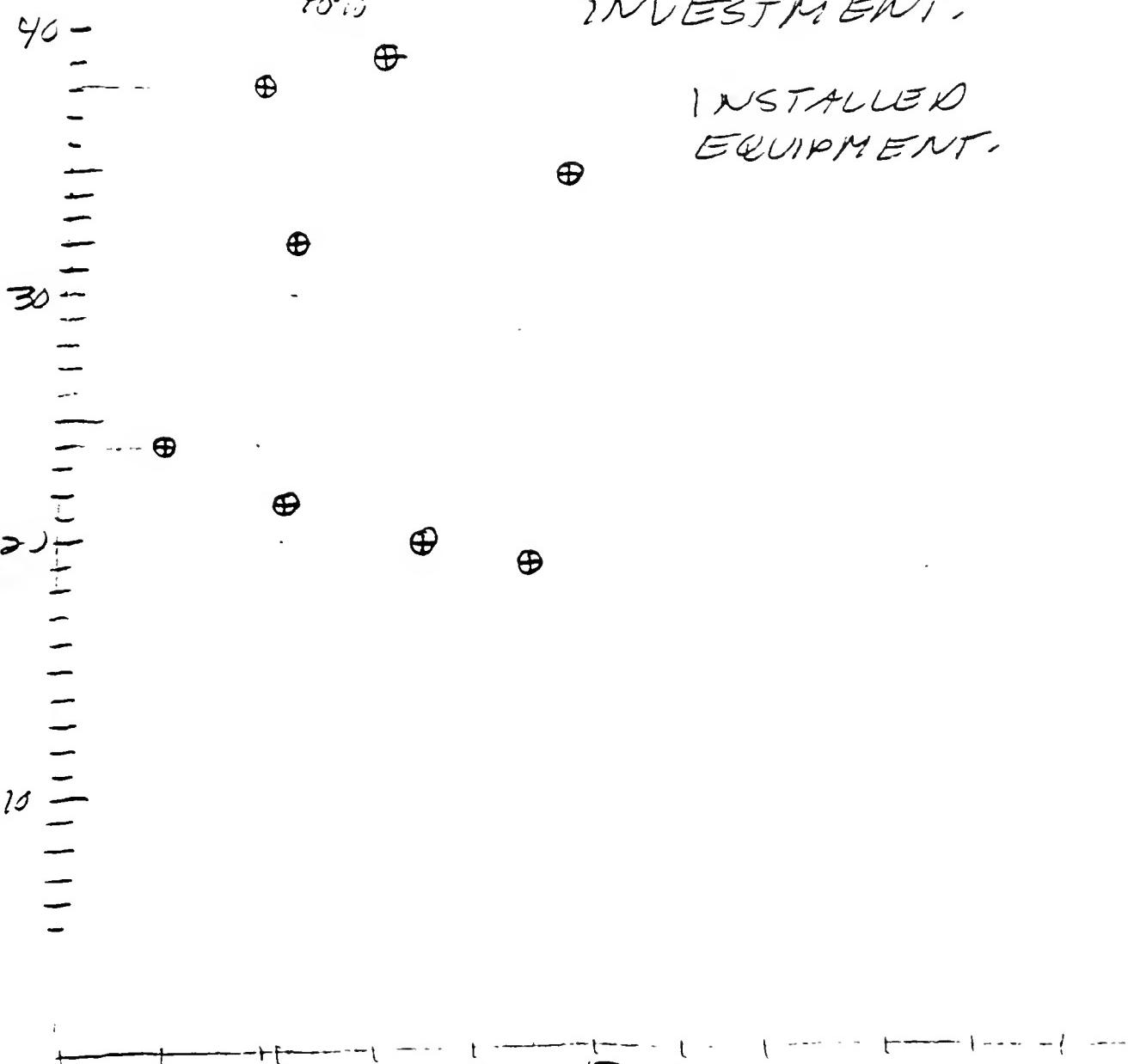
The Little Engine that Scares Con-Ed, by Tom Alexander pp81-84

Fortune Magazine, December 31, 1978

(source for installed rate of return on investment.

RETURN ON  
INVESTMENT.

INSTALLED  
EQUIPMENT.



.42  
SIZE OF EQUIPMENT  
MEGAWATTS

FORTUNE MAGAZINE  
DECEMBER 1978

## DIESEL

RETURN ON  
INVESTMENT.

- 80% LOAD
- + 40% LOAD

○ ○ ○

30

○ + + + +

20

○

+

○

+

10%

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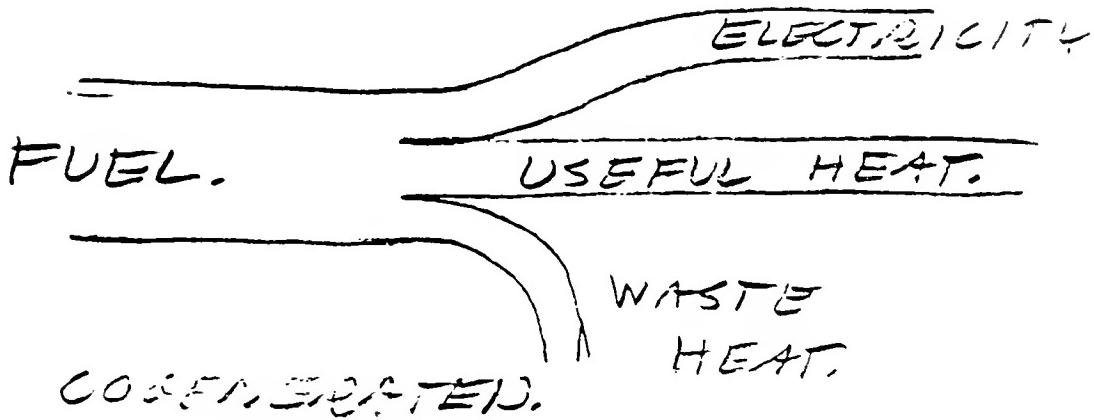
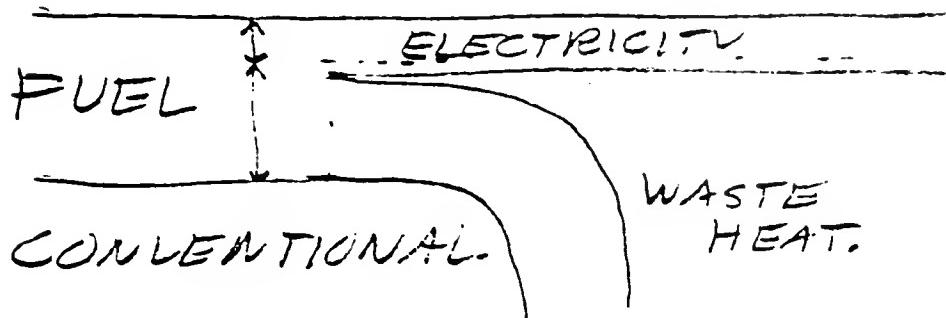
SIZE OF EQUIPMENT  
MEGAWATTS.

PT2

COA MASS. GOV.'S  
COMMISSION ON  
COGENERATION.

WITH CONVENTIONAL.

TWICE AS MUCH OF  
THE FUEL GETS USED.



EDISON  
SERVING



ELECTRICITY

FUEL



± 250°F

control

Cool 1.6  
ABSORPTION  
CHILLER

AIR

CONDENSER

140°F

DOMESTIC  
HOT WATER

(EDISON STREAM)

SPACE  
HEATING

Carolyn A. Gritter 52 Chandler Street Boston, MA 02116 542-5891

C-13

March 24, 1980

Mr. Richard B. Mertens  
Environmental Review Officer  
Boston Redevelopment Authority  
City Hall  
Boston, Massachusetts 02201

Dear Mr. Mertens:

In re State Identification Number: EOEA 03074  
Copley Place  
Urban Development Action Grant (UDAG) application

Please consider the comments on the Draft Environmental Impact Statement (DEIS) submitted here by Carolyn A. Gritter, Vice President of Ellis Neighborhood Association and Kenneth J. Gritter, Architect and member of the Copley Place Coalition for response in the final Environmental Impact Statement.

Report Section 7.1 LAND USE

While the project reinforces the existing commercial character of Back Bay, it certainly does not reinforce the residential character of the adjacent neighborhoods. Furthermore, since the Urban Investment Development Corporation (UIDC) is requesting a UDAG of \$19.7 million as well as tax privileges, the housing component should be substantially increased from what is currently proposed.

1

Report Section 7.2 HISTORIC PROPERTIES

If a project of this magnitude is determined to be compatible and complimentary with the nearby historic resources, then we must question the judgement of the Massachusetts Historic Commission. It is difficult to imagine a project which would have a negative effect on the historic resources if the Copley Place design does not. An oil refinery, perhaps?

2

Report Section 7.3 VISUAL QUALITY (b)

Many of the details of the visual quality of the project are still not known. However, it is obvious that the overall massing has been determined. Although the project does not violate Citizen Review Committee guidelines, it does not represent an imaginative solution to an admittedly difficult design problem. The design is less an aesthetic architectural statement than an expression of economic expediency. It is obvious that financial and engineering concerns outweighed architectural and urban design considerations in arriving at the present design solution,

3

Robert B. Mertens  
Page 2  
March 24, 1980

a solution whose lack of creative effort is revealed when contrasted with other examples of urban design which have been sensitively integrated into Boston's unique and historic cityscape.

#### Report Section 7.4 PARKING SUPPLY (d)

In spite of public transportation, parking provided within Copley Place, and consultant findings with respect to parking demand, we think that the driving public will still seek on-street parking in adjacent neighborhoods. The Ellis Neighborhood already suffers from a high commuter parking demand. We cannot accommodate the additional parking demand of construction workers and eventually visitors to Copley Place.

Because of our proximity to this project (see map), we request inclusion in the EIS of the requirement that UDAG approval be conditional upon the implementation by the City of Boston of a resident permit parking program in the Ellis Neighborhood and those other neighborhoods also requesting such protection. We cannot stress too strongly the need for this program to be in place before construction begins.

#### Report Section 7.7 WIND EFFECTS

Anyone who walks on the streets of Boston in the vicinity of tall buildings has experienced the powerful wind turbulence created by those tall buildings. Therefore, we think that it is irresponsible to finalize working documents in preparation of a late summer construction start without the benefit of a responsible wind analysis to assist the architect in producing a design which minimizes wind effects. It must be stressed that the effect of wind turbulence is felt at a considerable distance from its cause. Cosmetic architectural features, such as canopies over doorways, do not adequately address the wind problem. The real problem is the overall massing of the project. It is clear from the sequence of design and wind studies that the wind issue has been ignored.

#### Report Section 7.12 SOCIOECONOMICS

We urge that the UDAG be conditional upon UIDC's compliance with Mayor Kevin H. White's Executive Order of September 11, 1979 in which he stated that it would be the policy of the City of Boston to give preference to Boston residents when hiring for publically funded construction projects.

Robert B. Mertens  
Page 3  
March 24, 1980

Whatever changes UDIC claims to have made in response to citizen criticism, we suggest were made in response to economic factors. These comments on the DEIS reflect our disappointment that the Citizen Review Committee failed to truly influence the developer. The enclosed documents represent a partial written record of our attempt to tune the project and to communicate the needs, the priorities, and the recommendations of the groups we represent.

Sincerely,



Carolyn A. Gritter  
for the Ellis Neighborhood Association



Kenneth J. Gritter  
for the Copley Place Coalition

CAG:kk

Enclosures 4

cc: Environmental Review Officer, Executive Office of  
Environmental Affairs

Representative Barney Frank  
Representative Melvin H. King  
Councillor Rosemarie Sansone  
Councillor Lawrence DiCara  
Councillor Raymond Flynn  
Councillor John Sears  
Charles R. Levin, Esq.



Proposed Statement of Copley Place Coalition, adopted at May 4  
Meeting.

Please call Boston LNW office with comments -- 426-2857

The Copley Place Coalition, a new actor in the citizen review process reviewing development proposals for the Copley Place site, would like to acknowledge the fine work done for communities under the leadership of Professor Tunny Lee by the Citizen Review Committees active during 1977 and 1978.

In the months since the Turnpike Authority and UIDC signed a lease in December, our coalition of concerned communities and institutions has formed as an ongoing community monitoring group. Among the issues we have discussed is citizen review. We propose that this new round of CRC workshops consider adjusting the citizen review process to address the following concerns:

- . Are organizations or individuals members of the citizen review committee? Will there be defined membership? Who will the members be?
- . Will participants in workshops be encouraged to introduce themselves and their affiliations? It would be helpful to know what expertise is available to be called upon, and what communities and institutions are represented. Perhaps a matter of particular import will come up for discussion on a day when the most strongly impacted community is unrepresented.
- . Can the workshop sessions be set up to encourage discussion and citizen response? Both citizens and developers will benefit from a feedback process.
- . Can the process develop an accountable group of citizen representatives with a clear decision making or voting process?
- . Will there be subcommittees focussing on specific issues such as parking?
- . Will there be staff time available for and accountable to citizens?
- . What process will be used for continuing citizen review of the development after a plan is defined? When citizens work long and hard toward an acceptable development plan, they have made a commitment to watch it through to completion. How can citizen review be supported throughout the design and building phase?

We note the suggestion that there be an agenda/steering committee composed of Professor Lee, Jeff Cirmira of the BFA, and Ed Saunders of the Turnpike Authority, and two citizen representatives. We question this proposal. It would be difficult to choose two volunteers who could properly fulfill this role. To be appropriately representative would require that the two selected volunteers stay in frequent, continuing contact with the many groups affected by the development. The steering committee meetings, it is proposed, will be open and several. We see little benefit in designating any two... as members of the steering committee: we propose instead that citizens participate as needed.

When the format for continuing citizen review is finally decided upon, representatives can then be selected by an agreed-upon voting or delegation process.

C O P L E Y   P L A C E   C O A L I T I O N   c/o Boston League of Women Voters  
59 Temple Place, Boston, MA 02111 617/426-2857

August 15, 1979

Professor Tunney Lee  
Copley Place CRC  
Massachusetts Turnpike Authority  
Prudential Tower  
Boston, MA 02199

Property of  
**BOSTON REDEVELOPMENT AUTHORITY**  
Library

Dear Tunney Lee:

The Copley Place Coalition is pleased to see that many items we recommended were included in the outline for the housing impact analysis of the Copley Place Project. However, as previously discussed, we feel that an impact analysis must also lead to the formulation of measures to mitigate documented impacts. Since previous housing impact studies have shown that the Copley Place Project will have serious impact on housing for low and moderate income households, especially in the South End, we recommend that this analysis include suggestions for specific policies, programs, and assistance that could be initiated by the developer, local government, the State, and the Federal Government to alleviate, ameliorate, reduce or eliminate the potential negative housing impacts.

It seems inappropriate to assign this function to the BRA, because the BRA will be involved with the preparation of the UDAG and the 121A agreement. Additional, separate technical assistance is needed.

The CRC would be an appropriate body to formulate such recommendations, as long as appropriate technical assistance were made available. We again urge you and the Turnpike Authority to provide the CRC some technical assistance in this matter. Given the time requirements and the expertise needed to formulate such recommendations, it is imperative that the CRC be allocated technical assistance immediately. Since the Copley Place Project will now seek large amounts of federal funds, which are supposed to aid low and moderate income communities, it is even more important that these impacts are dealt with realistically and innovatively.

In summary, we urge you, the Turnpike Authority, the BRA, and UIDC to reach a consensus that real staff support is a legitimate need in this CRC process. In housing and community economic development, citizens critically need expert advocates for their concerns--essential, legitimate, and crucial concerns in this development.

Sincerely,

Jane Bowers  
for the Copley Place Coalition

cc: John Driscoll  
Ed Saunders  
Robert Ryan  
Jeff Ohura

LEY PLACE COALITION  
LEAGUE OF WOMEN VOTERS OF BOSTON  
COPLEY PLACE, BOSTON, MASSACHUSETTS 02111 426-2857

P R E S S   R E L E A S E

(NOT FOR RELEASE BEFORE AM PAPERS OF MONDAY, APRIL 2)

Contact: Jane Bowers  
426-2857 or 536-3426  
or Kenneth D. Campbell  
267-1579

Mayor against 2nd Hotel in Copley Place;

Offers BRA Design Aid to Coalition

Mayor Kevin H. White is opposed to a second hotel proposed by the developers in their latest plan for Copley Place, the 9.5 acre air rights site over the Massachusetts Turnpike land near Copley Square.

"There won't be a second hotel there. As far as I'm concerned, that's out," the mayor told the Copley Place Coalition at a March 24 meeting at Trinity Church requested by the group.

The Copley Place Coalition today released that news and their own position paper. The Coalition said the developer's proposal for four high-rise towers on the 9.5 acre site "is patently unacceptable."

The statement came in a March 22 letter to Mayor Kevin H. White from Ms. Jane Bowers, the president of the Boston League of Women Voters and spokesperson for the Coalition.

The Copley Place Coalition includes the League, the Neighborhood Assn. of the Back Bay, the Ellis Neighborhood Assn. of the South End, the Tent City Task Force, SUPAC (the South End Project Area Committee), the St. Botolph Street Citizens' Committee, the Trinity

Church, the Old South Church, the Bay Village Neighborhood Assn., and residents from the Prudential and other areas of the Back Bay and South End.

The Coalition said the size of the development had nearly doubled from what was originally proposed.

"The development first proposed--and recommended by the community in September, 1977--called for 2.2 million square feet, about the same square footage as the John Hancock Building. It has presently grown to a contemplated level of 3.7 million square feet, twice that of John Hancock," the Coalition said. A chart prepared by the Coalition showed the changes in the project in the 6 development proposals over the last 18 months.

"The retail space proposed was almost double that of Prudential Center's mall and attached department stores (Saks and Lord & Taylor), and almost double the space of the Chestnut Hill Shopping Mall. It is also double the developer's original proposal.

"The square footage, 3,700,000 on a 9 1/2 acre site, would bring about a density double that of Prudential, which includes 5,800,000 square feet on a 31 acre site.

"We are united in opposing a project of this size," said the Coalition, which favors development on the site. "The history of the project has been that each new proposal offered by the developer is larger than the one before.

"The developer is currently talking about four high-rise buildings. This is patently unacceptable."

The Coalition proposed a development of one hotel, one office building, the original 100 to 150 units of housing, and a retail development balanced 50-50 between one large department store (or two large specialty stores), and small retail shops. "Department stores are necessary to draw customers, small shops provide the balance," the Coalition said.

At the Coalition's meeting, the mayor said the Urban Investment & Development Co. (UIDC), Chicago developers, had not been sensitive to the architectural scale of Boston in their first plan. That first plan featured one hotel, one office building, a major retail development, about 150 units of housing, and a major parking garage. "It just wasn't sensitive, that's all there is to it," White said at the meeting in the library of the Trinity Church in Copley Square.

White told the Coalition members that the problem with the citizen participation in Copley Place was that it had waited for proposals from the developer, and then reacted. He suggested that now that there is an extended deadline, the group should get together with the Boston Redevelopment Authority (BRA) and have some rough plans drawn up of what the group wants, so that the alternatives can be examined. The Coalition members readily accepted the mayor's offer of design aid.

Robert Ryan, the executive director of the BRA, told the group that the city had sufficient control over zoning and design of the project through the Chapter 121A special tax agreement required from the BRA. Ryan said later that the BRA would review the

development program when it was submitted. "If it includes two hotels, we'll discuss it further with the mayor if it looks like a sensitive solution," he said.

Before the meeting in the library of Trinity Church, the mayor and six members of the Coalition walked around and through the site, which includes the tangle of Turnpike ramps and property bounded by Huntington Avenue, Dartmouth Street across from Back Bay Station, the railroad tracks and Harcourt Street. The Massachusetts Turnpike Authority property also includes the grassy triangle of land that was the former S. S. Pierce Building site, across Dartmouth Street from the Copley Plaza Hotel, and bounded by Stuart Street, Dartmouth Street and Huntington Avenue.

The mayor told about two dozen members of the Coalition that the walk had shown him how vast the 9.5 acre site was. He expressed concern about the wind conditions.

The Coalition has been meeting for the past several months because of its concern over the increasing size of the Copley Place development.

Those concerns have managed to unite groups which have frequently been at odds in the past decade of development in the Back Bay and South End.

On design, the Coalition made these points in their position paper:

--"The main entrance to Copley Place should be from Copley Square.

--"Huntington Avenue is a major street. It should become a

boulevard with hotels, office buildings, and the larger structures of the development.

--"The future Tent City housing and existing Harcourt Street housing require that the adjacent edges be built to a residential scale.

--"The Dartmouth Street Mall (wide sidewalk) should be continued from Back Bay to Columbus Avenue as a transition to and from the residential neighborhoods to Copley Place.

--"Buildings on Dartmouth Street must not be built to a high-rise scale.

--"The triangle at the corner of Huntington Avenue and Dartmouth Street should be the front door entering Copley Place from Copley Square. Building on this triangle is especially sensitive and at no point should exceed the height of the Boston Public Library or the Copley Plaza Hotel.

--"The development should avoid the look of one large building. If different facades are presented, the visual impact of the development will communicate a more accessible scale.

--"To minimize undesirable wind, tower buildings should be located away from Copley Square and away from Dartmouth Street."

The position paper also asked careful consideration of the shadows cast by a tower; a design which would make pedestrians want to walk through it; and assurances that there be no shift in the water table which would adversely affect three major historical landmarks built on pilings in Copley Square.

The paper also raised questions about the developer's

assumptions about traffic, parking, air quality, and construction phasing.

"We have been particularly concerned that the total project be designed and executed as an integrated unit. We consider that to be the only acceptable alternative, and we reject piecemeal development and construction as UIDC is presently contemplating. We fear that if the developer finishes the triangle first, he may not continue the more expensive parts of the development."

The Coalition applauded the developer's plan for housing: "We support development of affordable housing, especially for families."

The Coalition also urged that the Tent City site (Dartmouth St., Columbus Avenue, Yarmouth Street and Harwich Street) "be developed for housing in accordance with the needs and wishes of the South End Community. . . . This parcel should not be considered for a high-rise building." The effect of development on rents and housing supply must be considered.

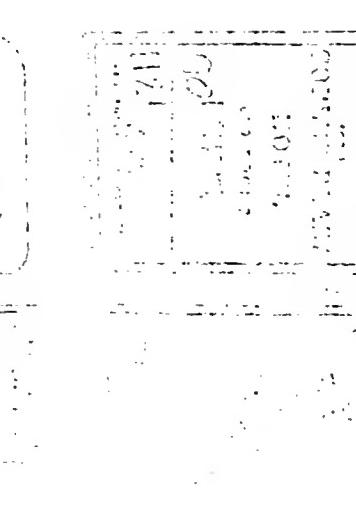
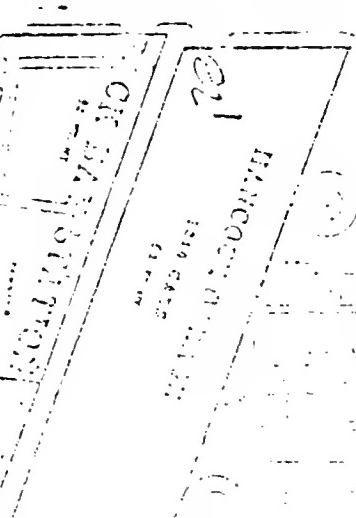
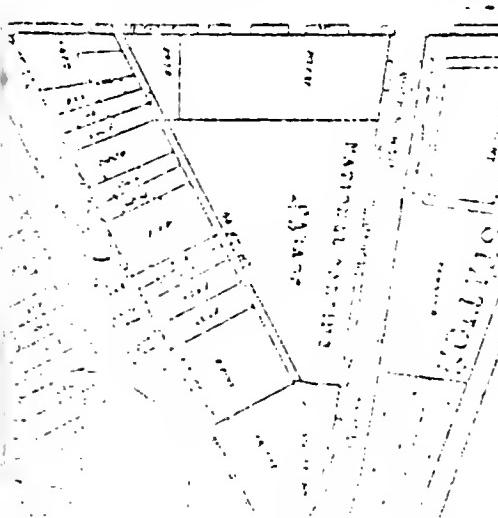
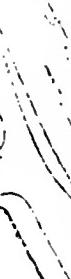
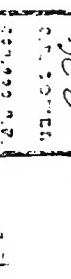
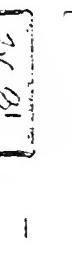
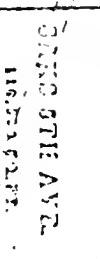
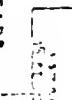
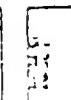
In its summary of the Copley Place development, the Coalition stated: "A fine development on this site would be an asset to our communities.

"Together we call for development that respects and honors the grand urban design of Copley Square; that knits together the communities of Back Bay, the South End, and Huntington Avenue-St. Botolph Street; that strengthens Boston as a livable city for present and prospective residents and visitors; and that has maximum positive impact on the quality of Bostonians' lives at minimum social cost."

LORD & TAYLOR

BOSTON PUBLIC LIBRARY

65



Source*	I. Draft CRC	II. FINAL CRC	III. Workshop CRC	IV. EIR Basic V. EIR Current Plan	VI. Latest UIC Proposal
Date	8/12/77	9/22/77	3/11/78	"June, 1978"	October, '78
2. Total Bldgs	2,177,207	2,277,000	2,566,000	3,244,794	3,563,994
3. Number of Bldgs	5,2	5,4	6,1	7.8	9.1
4. Number of Hotels	1	1	1	1	2
5. Office Buildings	800	800	850	800-850	1,600
6. Storage	395,000	395,000	502,000	500,681	? Unest'd
7. Support Space	266,267	317,000	268,000	311,411	? Unest'd
8. Residential: # of Dept. Stores Sq. footage	225,000	225,000	260,000	268,800	none or 1 6 to 100,000
9. Shops and Restaurants	200,000	225,000	225,000	351,887	150,000
10. Cinema	-	-	33,000	12,600	Same?
11. Supporting Space	90,000	140,000	153,000	392,160	Unest'd
12. Office: # of Bldgs Sq. footage	600,000	600,000	600,000	611,760	1,000,000 or \$00,000
13. PARKING: # Spaces Sq. footage	350,000	375,000	450-525,000	1,200-1400	1,750 670,800
14. HOUSING: # Units Sq. footage	-	-	-	100-150	100-150 83,900
15. CONSTRUCTION TIME	-	-	-	2 yrs.7 mos.	4½-5 years
16. NUMBER OF TOWERS	2	2	2	2	4
Source*: I. Office of State Planning (OSP) booklet: "Copley Square Recommendations" (of Copley Square Citizens Review Committee /CRC/ dated Aug. 18, 1977; II. OSP booklet "Copley Square Final Recommendations" of CRC, dated Sept. 22, 1977; III. OSP booklet "Copley Place Summary of Workshops" of CRC, dated Aug. 11, 1978; IV. Draft Environmental					

LEAGUE OF WOMEN VOTERS OF BOSTON  
59 TEMPLE PLACE, BOSTON, MASSACHUSETTS 02111 426-2857

March 22, 1979

The Honorable Kevin H. White  
Mayor of Boston  
Boston City Hall  
Boston, MA 02201.

Dear Mayor White:

The Copley Place Coalition looks forward eagerly to our visit with you tomorrow. We hope for a lovely sunny day like today, but we will go ahead rain or shine.

The agenda we have planned begins with a small group meeting you at the Library of Trinity Church at 11:00 AM (Clarendon Street entrance). This group will consist of Jane Bowers, Boston League of Women Voters; Richard Booth, St. Botolph Street Citizens' Committee, Inc.; Ken Critter, Ellis Neighborhood Association; Elliott Laffer, Neighborhood Association of the Back Bay; Bob Richards, Tent City Task Force; and Marian Ullman, Neighborhood Association of the Back Bay.

We will embark on our walking tour of the Copley Place site at that time. Our walkthrough indicates that this will take about forty-five minutes.

We will then return to the Library of Trinity Church, where other representatives of the community groups and institutions of the Coalition will be assembled to greet you. We are planning coffee and goodies. If you would like, the group would be pleased to hear you say a few words on your impressions. Individuals may wish to highlight special concerns of their own associations or institutions.

There will be approximately twenty-five people in this assemblage. Forty-five minutes would be an appropriate time frame.

Enclosed with this letter is a short paper outlining Coalition positions; the Final Recommendations of the Office of State Planning's Citizens Review Committee; and an article from The Review Sheet, a publication of Historic Neighborhoods Foundation which the Coalition thinks is a good background summary.

We are grateful to you for giving us this time.

Sincerely,

Jane Bowers  
Chairwoman

COPLEY PLACE COALITION  
March 22, 1979  
Statement of Positions

The neighborhood groups and agencies that form the Copley Place Coalition are united in their vital interest in any development on the site bounded by Dartmouth Street, Huntington Avenue, Harcourt Street, and the railroad tracks. We are the people, ours are the communities, whose lives will be affected by the development. The great institutions we represent will be the next door neighbors of the new buildings Copley Place will bring.

A fine development on this site would be an asset to our communities.

Together we call for development that respects and honors the grand urban design of Copley Square; that knits together the communities of Back Bay, the South End, and Huntington Avenue-St. Botolph Street; that strengthens Boston as a liveable city for present and prospective residents and visitors; and that has maximum positive impact on the quality of Bostonians' lives at minimum social cost.

We are united in working to:

Maintain the quality of life for residents in the adjoining neighborhoods

Protect the fine buildings of Copley Square

Avoid negative impact on the business climate of existing retail markets, including the shops of Newbury Street

Protect the environment of Boston for residents, workers, and visitors

Consider the economic impact of the project on the fiscal health of the city

Avoid displacement of tenants or homeowners.

The Coalition has come to agreement on guidelines in the important areas of scale and use of the project, design and massing, impact on housing and neighboring development, traffic and parking, and citizen review. Our positions were developed out of group study and discussion, using as a major tool the "Guidelines" incorporated in the Final Accommodations (enclosed) developed by the Copley's Review Committee formed by the Office of State Planning. Our positions reinforce those "Guidelines."

Scale and Functions

As we discussed the development and reviewed the "Guidelines," we looked at the plans presented by UIDC (the leaseholder) in 1978. It is our understanding that these plans will now undergo major changes, but it may be useful to present some picture of the size of the proposed development:

The development first proposed to the communities in 1977 called for 2.2 million square feet, about the same square footage as the John Hancock building. It has presently grown to a contemplated level of 3.7 million square feet, twice that of John Hancock.

The retail space proposed was almost double that of Prudential Center's mall and attached department stores (Saks and Lord & Taylor), and almost double the space of the Chestnut Hill Shopping Mall. It is also double the developer's original proposal.

The square footage, 3,700,000 on a nine and a half acre site, would bring about a density double that of Prudential, which includes 5,800,000 square feet on a thirty-one acre site.

We are united in opposing a project of this size. The history of the project has been that each new proposal offered by the developer is larger than the one before. The developer is currently talking about four high rise buildings. This is patently unacceptable.

Uses

We believe that any development on the Copley Place site should include mixed and balanced use. Each of the proposed uses presents problems and benefits that must be considered.

We suggest that a project that adheres to the following guidelines is one that we could support. The proposed uses should include:

Retail. The original plan focused on large-scale retail development. Through discussion, the communities have come to believe that retail space should be balanced at a 50/50 ratio between large department or specialty stores (i.e., soft goods, such as Filene's or Saks) and smaller mall stores. The retail space should not exceed that housed by one department or two large specialty stores and no department store should be occupied by small shops. If certain spaces are necessary to draw customers, small shops may provide the balance.

Hotel. Only one hotel should be included, and it should be fitting with the rest of the development in quality.

Office Building. No more than one office building should be included, and it should not exceed the original height guideline. Office buildings present special traffic problems because the traffic is concentrated during rush hours, and that should be considered.

Housing. The housing plans presented by the developer in 1978 were welcomed and positive. It will be a benefit to the project and to the adjoining communities to have housing included in the development, both intrinsically and in keeping live uses going throughout the day and evening.

#### Design and Massing

There are many exciting opportunities presented by development on this site. It could reclaim a "no-man's land" of ramps, bridges, and hazardous pedestrian crossings. A link could be formed which would bring together the neighborhoods too long separated by unattractive roadways. And an important urban space, Copley Square, could be visually defined.

But we believe that overdevelopment will destroy the qualities that make this area of Boston so memorable. The project should not introduce more people or cars into the area than can be effectively absorbed. The developer it should not be such that it overburdens existing systems, including streets, parking, utilities, open space, and residential neighborhoods.

In terms of massing, the project should respond differently to the variety of edge conditions:

The main entrance to Copley Place should be from Copley Square.

Huntington Avenue is a major street. It should become a boulevard with hotels, office buildings, and the larger structures of the development.

The future New City Building and existing Worcester Street housing require that the adjacent structures be built to a residential scale.

The Dartmouth Street Wall should be continued from Back Bay to Columbus Avenue at a transition to and from the residential neighborhood to Copley Place. Buildings on Dartmouth Street must not be built to a high-rise scale.

The triangle at the corner of Huntington Avenue and Dartmouth Street should be the front door entering Copley Place from Copley Square. Building on this triangle is especially sensitive and at no point should exceed the height of the Boston Public Library or the Copley Plaza Hotel.

We believe there are advantages to putting the densest development--the higher buildings--along Huntington Avenue to reinforce that street's importance as a major access into the downtown area.

The development should avoid the look of one large building. If different facades are presented, the visual impact of the development will communicate a more accessible scale.

To minimize undesirable wind, tower buildings should be located away from Copley Square and away from Dartmouth Street.

Careful consideration must be given to the shadow cast on Copley Square and the Back Bay by the proposed towers.

Boston is a walking city and the design of this project should ensure that pedestrian's can get to and through it. As presently designed, the edges are inhospitable and the Ballroom/Stuart Street Tunnel too wide and low.

There are three major historical landmarks built on pilings in Copley Square which could be seriously adversely affected by a shift in the water table. This is therefore an important consideration.

Some of the massing goals established by the CRC Final Report (pp. 7 & 8) are subjective by nature and were likely to produce solutions to areas of great concern. While UTEC claims to have responded to those recommendations, they clearly have not.

### Traffic and Parking

The development of Copley Place will have an impact on the flow of traffic. This must be studied in relation to other traffic patterns in the city, such as the highway and Turnpike. Our neighborhood reject plans which would allow the traffic flow worse: we cannot accept a downward level of service.

One concern we have is that the developer used two different assumptions in their planning. Their traffic study assumes that virtually all traffic will come from the west via the turnpike. Their market analysis, on the other hand, assume (and we think it is a reasonable assumption) that traffic

will be coming from all directions. The plans must take into account traffic from the north and south as well as the west.

The entire question of the number of parking spaces and designation of their use must be re-examined.

Our concerns about traffic and parking relate to both the construction phase and the completed development. We are concerned that construction trucks be prohibited from using primarily residential streets. To prevent cruising for parking spaces and to provide for residents, the city must implement an effective residential parking program in the surrounding neighborhoods both during and after construction which would include continuing effective enforcement and increased fines.

A major transit center will be accessible to the project. Private auto use of the project should be discouraged and access by public transit encouraged. Particular concern should be given to the number of rush hour auto users. Policies such as pricing of parking should be used to discourage commuter parking.

Air quality in the area adjacent to the garage exits should be further analyzed to ensure that the quality is protected. The study done by the developer does not include the air quality impact in all quadrants of the adjacent areas, in particular the Harcourt Street and adjacent South End areas. All quadrants are equally to be protected.

### Phasing

Throughout the citizens' review process, we have been particularly concerned that the total project be designed and executed as an integrated unit. We consider that this is the only acceptable alternative, and we reject piecemeal development and construction as UMC is presently contemplating. We fear that if the developer finishes the triangle first, he may not continue the more expensive parts of the development.

### Housing

The Copley Place Coalition would like to see the building developed as specified by the developer in his original plans. The scale and location are suitable, as is the commitment to preserving the visual easement from St. Botolph Street. We support development of affordable housing, especially for families.

The Whitch Associates report on the development indicated that the demand for housing as a result of Copley Place could be in

high as 500 units a year. Much of this demand would be felt in the South End community in the form of acceleration of existing rapid rent increases. A second office building would further exacerbate the problem.

Many of us have been concerned about the consequences of these pressures on low and moderate income individuals and families. Very little assistance has been offered by the State to reduce and ameliorate the impact on housing as a result of this project. If this project is to go forward, the City must make a firm commitment to guarantee that those people of low and moderate income who wish to live in our neighborhoods will be able to remain.

#### Tent City

There has consistently been a strong expression by neighborhood residents that the Tent City site in the South End be developed for housing in accordance with the needs and wishes of the South End community. This housing should be developed as soon as possible, in the same general time frame as Copley Place.

The design of the Copley Place development should not have a negative impact on the design of Tent City. In particular, this parcel should not be considered for a high rise building.

#### Buildings

The BDU must consider all these matters as it reviews the project. The BDU is the planning agency for all the City of Boston and as such must make a comprehensive review of any such large development. We urge the BDU to include a process of citizen review.

The Copley Place Coalition insists that the Boston Redevelopment Authority institute a strong citizen review committee. We understand how complicated the planning process is but we believe that the affected communities and institutions have the experience and concern to assure that the project will have a positive impact on the area.

A citizen review committee must be independent and must have sufficient access to staff support. This is the only way to assure a sensitive high quality project. The project we have reviewed lacks imagination. What should be architecturally exciting is only large. We must demand a better solution.

# BOSTON JOBS COALITION

2 Park Square Suite 612 Boston, Ma. 02116

617 426-4363

Director:

Yvonne C. Forrest  
Labor Liaison

Tom Maher

COPLEY PLACE  
ENVIRONMENTAL IMPACT STATEMENT  
Public Hearing March 20, 1980  
Rabb Lecture

**C-14**

Richard B. Mertens  
Environmental Review Officer  
Boston Re-Development Authority  
City Hall/Room 948  
Boston, MA 02201

Re: Public Testimony/Mayor White's Executive Order

The social and economic concerns of the Jobs issues for the people of Boston must be addressed. Jobs will be coming to Boston -- but will Boston Residents get these jobs? The Mayor signed an Executive Order, September 11, 1979, stating that 50% of these jobs must go to Boston Residents, 25% to Americans of color and 10% to women. This Directive is not just for permanent jobs after construction but for jobs during construction as well.

It is nice to build a "New Boston" -- but no one will be safe in the streets if we do not get rid of the "Old Racism in this City". The only way we can improve the Socio-economic Environment in this city is to share the job opportunity for All the Citizens of Boston.

I would like to enter for Public record The Mayor's Executive Order.

Thank you.

Boston Jobs Coalition  
Boston Jobs for Boston Work

Respectfully submitted,

*Yvonne C. Forrest*  
Yvonne C. Forrest  
Labor Liaison  
Boston Jobs Coalition



KEVIN H. WHITE  
MAYOR

CITY OF BOSTON  
OFFICE OF THE MAYOR  
CITY HALL, BOSTON

*Table VIII*

EXECUTIVE ORDER

WHEREAS there is a very high rate of unemployment in the City of Boston, particularly among the youth of the City, both white and minority;

WHEREAS the effect of this high level of unemployment has a serious, substantial and deleterious effect for all the neighborhoods of the City of Boston, resulting in the physical deterioration of the neighborhoods, vandalism, and crime;

WHEREAS there is a particularly high rate of unemployment and underemployment for Boston residents who have worked or seek work in the construction industry;

WHEREAS the City of Boston expends substantial sums of money derived from federal, state and city taxes paid by Boston residents upon public works projects in the City, hence City residents are entitled to receive some direct benefit from such expenditures;

WHEREAS in addition to the foregoing, the City is intent on satisfying its statutory obligation to give preference to its residents in hiring for publicly funded construction projects pursuant to G. L. c. 149, §26.

THEREFORE, I do hereby order that the following policy take effect as of October 15, 1979:

(1) On any construction project funded in whole or in part by City funds, or funds which, in accordance with a federal grant or otherwise, the City expends or administers, and to which the City is a signatory to the construction contract, the worker hours on a craft-by-craft basis shall be performed, in accordance with the contract documents established herewith, as follows:

- a. at least 50% by bona fide Boston residents;
- b. at least 25% by minorities;
- c. at least 10% by women.

For purposes of this paragraph worker hours shall include work performed by persons filling apprenticeship and on-the-job training positions.

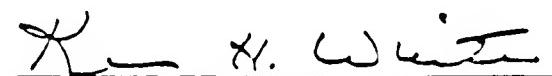
(2) Each department of the City of Boston contracting with any private corporation or person for such construction projects, shall include in all such contracts the provisions of the City of Boston Supplemental Minority Participation and Residents Preference Section to insure compliance with this Executive Order.

(3) The Equal Employment Opportunity Contract Compliance Office of the City of Boston through the Awarding Authority shall be responsible for monitoring and enforcing the provisions of this Executive Order and the contract provisions established in accordance therewith.

(4) I urge the Boston Redevelopment Authority and the Economic Development and Industrial Corporation to incorporate the provisions of this policy into all the contracts for construction projects to which they fund or administer, and to which, in their capacity as owners are signatories.

(5) I direct the Vice-Mayor, the Corporation Counsel, the Assessor, and request the BRA staff to research the legal feasibility of the incorporation of this policy into the General Laws Chapter 121A process and if found to be legally feasible, I will incorporate this policy into that process and any other tax related development incentive process.

(6) I am filing today with the City Council a proposed ordinance which will punish those people who would misrepresent facts about themselves in order to become beneficiaries of this program.

  
\_\_\_\_\_  
Kevin H. White  
Mayor

September 11, 1979

Date:

ATTN Richard B. Mertens  
Environmental Review Officer  
Boston Redevelopment Authority  
1 City Hall Plaza  
Boston, Ma.

March 25, 1980

Re; DEIR/EIS

City of Boston  
Office of Federal Compliance  
Boston City Hall, Room 958  
Boston, Massachusetts 02201

re: Draft Environmental Impact Statement, Copley Place

I have been a resident of Boston for the past 15 years, first in the Back Bay, for the last eight years on St. Botolph Street. The following presents, in no particular order, some of my concerns relative to environmental issues and the proposed Copley Place development.

1. Traffic. While addressing traffic volumes on major streets and at major intersections and the projected impacts due to Copley Place, the DEIR/EIS failed to study or report in a meaningful way current and projected impacts on the smaller residential streets within the impact area. It is well known to those of us who live here that the residential streets are already unacceptably heavily used by taxis and daily commuters as speedways and shortcuts to avoid existing congestion and traffic signals on the major arteries. What common sense tells the resident about traffic impacts due to Copley Place appears not to have been meaningfully addressed by DEIR/EIS consultants whose vision seems limited to numbers and percentages of traffic increase (and a questionable methodology) and reflects an insensitivity to quality of life impacts to the neighborhoods. They seem uninterested in or unable to perceive than an increase of 5% or 25% translates into the realities of increased automobiles, noise, and air pollution. The DEIR/EIS "shows" that noise and pollution levels will not increase as a result of Copley Place, but this appears largely based, as is so much of the DEIR/EIS, on averages (and worst-case situations) of db's and CO<sub>2</sub> levels, on abstractions, and not on the more meaningful patterns of variations which is the reality for the resident. A certain db or CO<sub>2</sub> level may be neither annoying or disruptive at a constant or average level, but horn blowing, starting and braking, idling engines in congested traffic, is. Even a 5% increase over current levels is unacceptable when unpredictable patterns of variations vs. constants are considered. While St. Botolph Street residents should be pleased that their street was considered at all (most small residential streets were not), the consideration was superficial and was treated in the abstract as opposed to human terms, and seriously underestimated both current and projected numbers of autos despite the fact that a more detailed study was requested by the St. Botolph neighborhood association by letter of October 12, 1979. While those representing the City at CRC meetings tell residents to work out these problems with the City, this neighborhood's request to the City nearly two years ago relative to traffic volume and speed problems on St. Botolph Street has still to be substantively addressed. The DEIR/EIS failed to provide specific programs to counteract congestion resulting from Copley Place, failed to explicitly illustrate the ripple effect of increased congestion at major points outward, namely to the residential streets. Anything less than level-of-service C in residential neighborhoods seems unacceptable, as does even a single drop in existing level-of-service on any residential street. Where is City policy on traffic in the residential neighborhood?

2. Parking. We were told at CRC meetings by representatives of the City that the neighborhoods must assume the burden of seeking parking sticker programs

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in order to mitigate against the parking and traffic impacts of Copley Place. St. Botolph Street requested a resident only parking program from the City by letter of August 1979. South End neighborhoods had indicated an interest prior to this. Back Bay has also approached the City. The City, in turn, voiced its verbal support for such programs. Yet, seven months later, nothing concrete has been accomplished for the St. Botolph neighborhood (the same has likely been the experience of the South End and Back Bay neighborhoods). Regardless of the fact that even without Copley Place, there is no parking available in the City, the impact of those driving to Copley Place and "cruising" the residential streets searching for nonexistent parking cannot be overlooked and alternative solutions should be proposed and acted upon. The DEIR/EIS would have one believe that because there is no available parking that the parking impact due to Copley Place will be zero. This argument is invalid simply because the "cruisers" do not know, do not believe, or do not care that our on-street parking is saturated. They will continue to "cruise." The argument is similar to the one on traffic which states that where streets or intersections are already traffic saturated, congestion at those points will not increase. True, it cannot, but backups will occur forcing congestion at other intersections and alternative routes will be taken to avoid congestion, namely through the residential neighborhoods. On paper the arguments have a certain validity; for the resident, it will become a nightmare. Finally, the DEIR/EIS failed to address alternatives to on-street construction parking during the early stages of construction; on-site or off-street parking must be provided throughout the entire construction period.

3. Density and the visual impact. The density of the Project is approximately twice the density of the Prudential Center and more than 5 times that of the surrounding residential neighborhoods. While economics due to site difficulties and efforts at massing and setbacks are appreciated, the density is in no way compatible with the surrounding areas, most notably the St. Botolph and South End neighborhoods. While the height constraints are consistent with CRC guidelines, the scale and massing do not seem, to me, to meet the spirit of the guidelines. From a pedestrian point of view, the Project will appear as a monolithic block and represent only an obstacle of a different variety from that of the existing ramped spaces. The pedestrian is forced up, up, into and through the Project and down, down, and out of the Project, or is forced to walk around the site as is the present circumstance. This does not seem consistent in spirit with the idea of preserving Boston, as many would wish, as a human scale pedestrian-oriented City. The DEIR/EIS fails to show why a reduced density is economically unfeasible, if that is the case.

4. Wind. The DEIR/EIS concedes unacceptable wind impacts at several intersections and along certain buildings both within and along the perimeter of the site. Yet, construction is to begin without wind tunnel studies and, again, no specific mitigating measures have been offered. My experience in the past has been that architects and developers have a different conception of what an acceptable wind speed is than does the pedestrian. Again, the architect and developer deal with numbers or abstract quantities and the resident pedestrian deals with the wind. One of the more positive aspects of the Project was to link neighborhoods by providing visually interesting pedestrian walkways. One tends to forget that the pedestrian is the link, not the Project. How strong will that link be and how long will it be sustained if the pedestrian has to walk head down into the wind or, worse, opt to avoid the Project altogether? Will the pedestrian amenities be sufficient to offset the obstacles of mass and wind? It is inconceivable to think that the Project will be built and then a look taken to see what can be done to lessen significant wind impacts when these are already anticipated prior to construction. What guarantee do

re: DEIR/EIS, Copley Place, p.3

residents have that pedestrian walkways will be walkable in a comfortable manner for children, the elderly, the handicapped, the adult in general, as opposed to "comfortable" per some abstract standard that says humans are comfortable walking at such and such wind velocities and at higher velocities if they occur only a certain percentage of the time. If the existing wind on Huntington Avenue around the Christian Science Center, the Colonnade, and the Prudential Center, and the wind along Franklin Street (my walk-to-work route, where there is considerable building channeling) is acceptable according to some standard, then I, for one, do not desire any more "acceptable" wind velocities.

5. Noise. See Traffic.

6. Harcourt Street Noise and Wind. The DEIR/EIS suggests that noise levels at Harcourt Street will nearly meet or exceed noise level standards. Measures should be taken to drastically reduce this impact on residential area through materials and design efforts. The same may be said for the anticipated wind levels caused by channeling between buildings along Harcourt Street. I trust that workable solutions can be implemented for this small area of impact, although again, the DEIR/EIS failed to consider any specifics. Instead, references are made to the "106 process."

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7. Shadows. While the percent shadow increase due to Copley Place, especially apparent in the winter months, appears to be relatively small, again the Copley Square area is principally affected and quality of life is likewise affected. It is another example of quantified data vs. human impacts that is cited.

8. Energy. The DEIR/EIS failed to consider alternatives to traditional energy sources. It failed to prove its energy program to be more cost-effective over the long run than any other program or combination of programs. It simply stated that Project capacities can be met by existing facilities in the conventional manner. This seems short-sighted and socially and economically irresponsible. The same approach was used for water, sewer, police, and other services. Interestingly, St. Botolph Street is currently suffering from inadequate drainage systems and has gone to the City for help; police protection for out (and other) neighborhoods has been cut back already. The DEIR/EIS would lead one to believe that not only are all services adequate at present but that the Project will not affect the status quo or add costs. Numbers again, not quality.

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9. Land use. Regretably, I must endorse at this time the no-build alternative. I had hoped, though involvement in the CRC process to at least develop an appreciation and understanding of the economics of building on that very difficult site. That I did. But my basic feeling remains the same: the negative impacts to the affected neighborhoods will outweigh the pluses to the City. While the Project will fill needs for the City as a whole in terms of office and hotel space and increased tax revenue, it fails to convincingly show that it will concomitantly improve quality of life in impact neighborhoods and institutions. The Project, sited along Summer Street for example, would provide the same benefits to the City without the heavy disruptive effects and negative impacts on existing residential neighborhoods. Assuming, however, that the Project will be built on the Copley site, AN "optional" plan is preferred to the "preferred" plan. In spite of the DEIR/EIS assessment of negligible impacts, I feel the traffic

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and parking impacts will be less without the Specialty Department Store and reduced mall shops, restaurants and related service areas (with hotel, community-based retail and parking remaining the same), especially on weekends and evenings. If the or AN "optional" program is eventually selected, the DEIR/EIS failed to address uses of the Specialty Department Store site other than office. The alternative of additional housing and other uses should also be explored. Something other than office and hotel should be considered to offset the heavy commercial useage of the site.

10. Jobs , housing, displacement. In spite of the above, if the promise of jobs for impact neighborhood residents were to become a reality and housing needs met, I would support the Project. Even if jobs were a guarantee, rather than a goal, housing issues have not been addressed adequately by the City nor have proposed plans for new housing been finalized, e.g. Tent City. By the time 1985 arrives who will constitute the impact area residency? It was my understanding that the idea of jobs for area residents was not simply jobs for area residents but jobs for existing area residents to help preserve the "social fabric" and economic mix of the status quo and help stabilize neighborhoods. Boston is a City of great institutions; but its vitality and viability come from the rich variations found among its people. Whether or not Copley Place is to be held in any way responsible for accelerating the so-called gentrification-displacement trend, the City and perhaps even the developer if necessary must become involved by action, not lip service, in solving these problems. Again, the DEIR/EIS offers no specific plans which can be implemented relatively quickly to insure jobs and housing for existing impact area residents.

11. Protection to existing properties. This issue was inadequately addressed by the DEIR/EIS. Prior to the start of any construction activity and at certain key times throughout the construction period, all buildings adjacent to the Project site, including Harcourt Street and along St. Botolph between Harcourt and Garrison Streets should be structurally surveyed, with building condition statements mutually agreed upon by engineer, contractor, and property owner. This agreement should be part of the construction specifications. Uncomplicated legal recourse procedures need to be in place before construction begins

12. Stuart Street. Safe continuous pedestrian walkways along both sides of Stuart Street is highly desired.

13. Harcourt Street housing parking. Again, the ratio of one parking space to every two units of housing is unacceptably low.

14. Traffic and Harcourt Street. Vehicular access between Harcourt Street housing parking and other vehicular areas within the project will not be physically permitted. Nor should pedestrians be permitted to circulate between the Project and Harcourt Street housing. Vehicular traffic should not be permitted to circulate to the Harcourt Street side of the hotel, i.e. there should be no vehicular loop access around (encircling) the hotel on any open level.

In conclusion, I feel the developer has been most responsive to neighborhood design concerns wherever possible, but the Copley Place Project seems the

re: DEIR/EIS, Copley Place, p. 5

wrong project for the site and Copley Square the wrong site for this particular project. I am basically disappointed in the DEIR/EIS which presents only quantifiable data on environmental impacts without translating them into human terms and consequences. It seems to say, "Hey, you out there, whatever you are - this is what you're going to get. We have a vague idea of this 'quality of life' you keep talking about but we don't know what we can do about it. Besides, it can't be all that bad because government standards assure us it won't harm you. Don't worry, you'll get used to it." I also wonder where the City has been (and I am a champion of this City). It would have been nice to see the City actively go to bat on the side of the neighborhoods, even if on only a few issues, rather than always be seen in the role of passive compliance with the developer. Maybe I am not aware of all the behind-the-scene's activity. Regretably, I do not have the answers nor the resources to provide meaningful and implementable alternatives or solutions.

Respectively submitted, -

Sally Perry  
Resident, 123 St. Botolph Street  
Member, St. Botolph Citizens Committee

131 Appleton St.  
Boston, Ma. 02116  
March 24, 1980

Mr. Richard B. Martins  
Environmental Review Officer  
Boston Redevelopment Authority  
City Hall  
Boston, Ma.

Re: Copley Place

Dear Mr. Martins;

I attended Thursday's public hearing on Environmental impact, and was dismayed that almost all of the "community input" came from three permanent organizations of low-income residents, intent on tying the project to a variety of social-welfare programs. I do not believe their views are representative of even a majority of the residents in the affected neighborhoods, and wish to make that opinion a part of the public record.

On the whole, I feel that both the economic and physical effects of this project will be somewhat beneficial to the immediate neighborhood and the city. I know many of my neighbors hold similar views.

The attrition in low-rent housing which

so rightly concerns the low-income groups has been going on before Copley Place was conceived, and is obviously the result of several forces of direct connection to this project. In the sense of new Federal, State, or City programs, would not anticipate much change in this area whether or not Copley Place goes ahead.

As an architect, planner, and immediate neighbor of the site, I do have some minor reservations:

1. The architectural expression, to date, is hardly distinguished. I would hope something (1) the might ultimately emerge for such a conspicuous site.
2. I am not convinced that the planning occurs is sufficiently integrated with projects adjacent sites which will probably reach completion about the same time. I would (2) ge greater intra-action among the responsible agencies.
3. The adjacent area of the South End is a quiet residential character. I believe potential negative impact of increased through traffic and on-street parking by transients has been underestimated. As permanent street

3) paving and sidewalks are incomplete in part of this area, the city has the opportunity to install protective devices at little extra cost. Specific strategies that might be incorporated would include changes in traffic direction, and the narrowing or closing of roadways in key blocks.

Very truly yours,

Robert W. Harbness

cc: South End Site office

COPLEY PLACE EIS PUBLIC HEARING

Boston Public Library, March 3, 1980

Summary of Testimony

1. Introduction - Peter Dinkel, Chairman
2. Project overview - Steve Eimer
3. Impact summary - Scott McCandless
4. Public testimony

(1) Webb Nichols (architect)

(Visual quality) - EIS can't evaluate what the project will look like. Copley Place is unacceptable as architecture; it is the preliminary study of a first year student. It is only luck that there is no impact on Trinity Church, BPL. The BRA has an extensive design review process - why hasn't more concern been shown? Good architecture is required, since the project will be around for a long time. Much more work needs to be done to make the project acceptable. As it presently is designed, the project will be disasterous. The developer should forget the profit margin and concentrate on good design. "Carl Sandburg wouldn't write any poems about this project."

(2) Yvonne Forest (Boston Jobs' Coalition)

(Socio-economic/jobs) - Jobs must be addressed - will Boston residents get the Copley Place jobs? Mayor's Executive Order applies to construction jobs as well as permanent jobs. Job opportunities must be available for all Boston residents.

(3) Elliott Laffer (Neighborhood Association of the Back Bay)

DEIS is a vast improvement over prior EIR, but it still has some problems for the Back Bay.

Traffic: substantial increase projected for p.m. peak. The existing street system can't handle this. What about the cumulative impacts of other projects (e.g., Hynes expansion)?

Parking: the parking deficiency will affect the adjacent neighborhoods. There is need for immediate action to enforce resident-only parking.

These problems can and should be overcome. NABB does support Copley Place.

(4) Robert Case (Fenway Energy Organization)

(Energy - slide show presentation) - Concerned with energy problems of Copley Place. Copley Place is ill-conceived as an energy project. C.P. must share the energy burden. It is continuing the existing energy policy (reliance on nuclear, oil, gas, coal); it is inefficient (heat waste). We must think of future energy needs (e.g., proposed Westland Avenue solar energy project). Copley Place must consider solar energy, co-generation.

(5) Samuel Zramier (F.E.O.)

(Energy) - No consideration in EIS of alternate energy sources. Questions that must be answered:

What method of heat intergration will be used?

Will Copley Place be able to meet proposed Federal energy standards?

Has solar energy been considered?

What type of glass, insulation, will be used?

Why is the project considering going all-electric, giving up on steam use (when Boston Edison actively encouraged greater steam use)? What effect will this have on peak usage?

Copley Place should use the Tent City site for storage tanks to store excess heat. C.P. should join with Tent City for joint energy use.

(6) Ambrose Spencer (F.E.O.)

(Energy) - Co-generation - explanation of process and support. Example of how co-generation could be used at Copley Place. Answers to some criticism:

NO<sub>x</sub> - Co-generation has been used for many years in Europe; problems have been resolved with controls.

Additional developer costs - join with Edison.

(7) Stuart Robbins (Back Bay Association)

BBA strongly favors the construction of Copley Place. Boston's survival depends on maintaining its services industry. Copley Place is necessary for this. Its impact is minor. Copley Place is an emphatic plus for Boston.

(8) Rev. Thomas Kennedy (Trinity Church)

Copley Place has an impact on the future growth of Boston - the EIS shows a lack of consideration of impacts, association of impacts. It has certain negative impacts:

- destruction of the quality of the physical environment surrounding the project
- drain on natural resources
- disruption of the social environment

The EIS has not adequately addressed these impacts. There also are several problems with Copley Place:

- there is no parking policy to protect the neighborhoods from the impacts of Copley Place
- the displacement of City residents from their neighborhoods
- there is no coordination by public agencies
- there is no comprehensive plan to deal with the traffic and parking problems of construction workers

There is a need for coordination of the construction impacts of Copley Place, SW Corridor, and Tent City - these three major projects must move together. There will be major problems with displacement because of Copley Place and SW Corridor. There is a need for additional housing units. The City must use the UDAG payback for housing for the Copley Place employees and neighborhood residents. The top concern should be the quality of human life of the City's residents.

(9) John J. Kenny (resident, Boston Jobs Coalition, Welfare Coalition of Roxbury Crossing)

The developer should be required to comply with the Mayor's Executive Order on jobs. Boston residents must have access to Copley Place jobs.

(10) Marsha Wiley (SEPAC)

The only people who will be able to live in the area (South End) will be the rich. The impact of condo conversion has not been considered. We cannot allow the kind of thinking shown in the ERA report - that most Copley Place workers will be lower paid and thus won't be able to afford to live in this area. "A downtown country club is being created at our expense." With a \$19 million UDAG, the government could build 500 housing units. Housing is needed more than luxury hotels, Nieman Marcus. Tent City - SEPAC supports the building of Tent City according to the task force guidelines. Tent City must be built. If UIDC doesn't support Tent City, SEPAC will do all it can to see that Copley Place doesn't get built.

(11) Ken Campbell (SE resident)

Copley Place is too large, too massive - 1½ times Hancock Tower, 75% more dense than Prudential. The scale is not appropriate for the site. The wind impacts are unacceptable; there is potential for more impacts on the Hancock Tower. Ten to fifteen locations around the site are expected to be problem areas. Copley Place already is a windy site. There are also problems of pile driving effects, dewatering, on adjacent structures.

(12) Elizabeth Siffle (Tent City Corp.)

(Socio-economics) - Tent City Corp. and Trinity Church jointly have retained a consultant to review the ERA report. There is a need for greater attention to the use of other impact studies (e.g., Faneuil Hall). ERA study does not specify the impacts expected in the Tent City area and along the transit corridors. The displacement impacts - Fenway, Back Bay, South End - were not considered. The ERA conclusion that 40% of the Copley Place employees would come from Boston is not in accord with the Mayor's Executive Order. The potentiality of conversion of housing units to commercial use (as has happened along Newbury Street) has not been addressed in the EIS. The Pru provided 780 units of housing to supply the demand of that project; why can't Copley Place do the same? The demand impact calculations are difficult to understand. The housing should reflect the income levels of the project.

**C-18**

(13) Robert Richards

Finds discrepancies in comparing South End Closeout EIS and Copley Place EIS (ERA study). An honest housing study should be done - the housing study of the EIS is a sham. The Copley Place project has lost its viability to exist in the South End neighborhood; it guarantees low-paying jobs so that people can't afford to live in the area.

**C-19**

(14) Charles Levin (Ellis Neighborhood Association)

Traffic impacts - the impact of hotel-generated taxis have not been considered. Taxis will have an impact on the South End and Back Bay; they use narrow residential streets and taxi drivers are the worst drivers.

**C-20**

(15) Kenneth Gritten (Chandler St. resident)

(Wind impact) - EIS does not recognize wind impacts. It is essential that wind tunnel studies be done.

**C-21**

(16) Myra McAdoo (Castle Sq. resident)

Wind effect - Copley Place will cause more Hancock window panes to pop.

Availability of jobs for all people - concerned that a large proportion of permanent jobs be available for Boston residents.

Opposed to any loss of low- and moderate-income housing. Demand that Copley Place include 1,000 low- and moderate-income housing.

-22

- (17) Cole Harrison (All City Organization (coalition of city housing groups))

Copley Place (and several other projects) will cause "massive" displacement of "thousands" of people. Although the EIS lists a thousand low- and moderate-income housing proposals, these have already been promised by the City to offset the effects of urban renewal, etc.; they are being counted twice. Demands 1,000 low- and moderate-income housing units be bought (by UIDC) to preserve them for low- and moderate-income residents.

-23

- (18) Jack Mills (Fenway Tenants)

(Housing displacement impacts) - Copley Place will heat up the housing market in the Fenway - this is an environmental impact.

-24

- (19) Michael Cain (Low Income Planning Aid)

The substantial impacts on the South End have not been evaluated, nor have alternatives to mitigate these impacts (e.g., inclusion of Tent City in the UDAG application). The job breakdown is not mandatory, only a goal; this is a shortfall of the EIS review. The EIS is not adequate in dealing with alternatives.

Richard Mertens  
March 24, 1980

July 13, 1980

Secretary John Bewick  
Commonwealth of Massachusetts  
Executive Office of Environmental Affairs  
Saltonstall Building  
100 Cambridge Street  
Boston, Ma. 02202

OFFICE OF THE  
GOVERNOR OF MASSACHUSETTS

Re: Pedestrian Wind Environment at Copley Place (prepared by Bolt, Beranek and Newman, Inc., June 1980)

Dear Secretary Bewick:

The presentation of pedestrian wind environment, with and without Copley Place, was difficult for me to follow. It seemed either so general as to lack content or too complex to grasp, the bridge between lay and technical not easy to traverse. Perhaps it is, in part, the nature of the beast.

(1.) It would appear that the major data is contained in Table 1. It is suggested that the mph equivalent always accompany mps data. If I understand the Table correctly, it gives us the speed of the wind which will be exceeded 1% of the time, on the average, at the various sensor locations. While this is certainly an important piece of information, it does not begin to describe the general wind environment, existing or proposed. For example, what are (will be) the average and, more importantly, the median wind speeds at each sensor location? What percent of the time is (will be) the wind 0-5 mph, 6-10 mph, 11-15 mph, 16-20 mph, 21-25 mph, 26-30 mph? Bar graphs might be used to illustrate. This information might also be shown for seasons of the year (with accompanying lay explanation of the wind "roses"). What does "on the average" mean?

(2.) The upper limit of "comfort" criterion selected was 13.6 mps or 30 mph. This appeared to be defined on p. 8 as "the threshold of possible danger to frail or handicapped persons" and on p. 10 as "the comfort velocity." This seems rather contradictory. In any event, on July 6 a Boston weatherman reported winds of 24 mph with gusts to 37 mph. At the rear of my building (Huntington Ave. side) impatiens were uprooted from their boxes and cucumber and squash plants broken in multiple places by these winds. I tried to pick up trash that was being swept along but was finally discouraged by the sand and dirt flying in my eyes. Five stories up at roof level the wind appeared much less and none of our flowers or vegetables suffered. Based on this and other experiences and simple intuition, I fail to comprehend the basis upon which it was concluded that 30 mph winds are at the upper level of "comfortable." "Tolerable" might be a more accurate description, and "tolerable" only if one were well motivated toward a particular activity. I suggest that the recommended "strong breeze"-to-"moderate gale" criterion (30 mph) be replaced by the "fresh breeze" criterion (19-24 mph) as the threshold of pedestrian "comfort" and that mitigating measures be employed to reduce perceived wind speeds to this level or less.

(3.) The boundaries of the model should be clearly and precisely described in the narrative (vs. Figures A10-A11). I assume (although it was not entirely clear) that winds interacting with the Hancock, Prudential complex, and Colonnade Hotel were included. There was no mention of the 30-story Christian Science Administration Building on Huntington. St. Botolph Street area residents would also be concerned with existing and proposed winds on Huntington between Harcourt and Cumberland, on St. Botolph between Harcourt and West Newton, and at corner of St. Botolph and West Newton Streets. Even though there are no sensors upon which to derive hard data, guestimates could be given. Certainly, the project is going to increase winds all along Huntington. Consensus would predictably be that already winds along Huntington from Dartmouth to Mass. Ave. are more than "uncomfortable" far more than 1% of the time (or average 14 minutes per day). Corner wind velocities should also be addressed more specifically, e.g. at the corner of Harcourt and Huntington, since these are described as "accelerated", presumably meaning beyond that shown by their respective sensor locations.

(4.) It is very nice to talk about mitigating measures such as tree plantings, awnings, enclosed walkways, and the like but these are meaningless unless they are built into the project design at the outset or otherwise guaranteed. What will their funding be? Enclosed walkways should be very carefully considered as they may not be perceived as safe and hence may not be used by the pedestrian. Re-routing the pedestrian (especially via enclosed overpasses) at a location where excessive wind is anticipated seems to run contrary to the notion of Boston as a pedestrian or walking city and contrary to the project's professed intent as a pedestrian link among neighborhoods. Quantification of just how much mitigating measures are expected to reduce winds should be presented. Wording on p. 14 is not very encouraging ("partially protect", "slightly decreases"). Because the project will increase winds overall, the design should not only concern itself with reducing "uncomfortable velocities" caused by Copley Place, but should also concern itself with mitigating existing areas of excessive winds. (Similarly, design should function to put light into existing shadowed areas (by reflection or other means) since the project will add shadows to existing sunlit areas).

This presentation was described as an "interim status report." What is to follow was not described. Hopefully, the final report will be more comprehensive in scope, include information requested herein, be more understandable to the lay person, list mph equivalents, and consider alternative criteria (range) for pedestrian "comfort". It would appear that an awful lot of tree planting (maybe "mini forests" would be more descriptive) will be needed to mitigate wind impacts at Copley Square and along Huntington Avenue. The project is too dense and the massing of the bases of the larger elements (hotels and department store) still do not meaningfully consider the pedestrian. Huntington Ave. is windy now. It should not be made worse. And what, I cannot imagine, will be so visually exciting along the Huntington Ave. Copley Place frontage to entice resident pedestrians to subject themselves to these winds and thus link communities.

Sincerely,

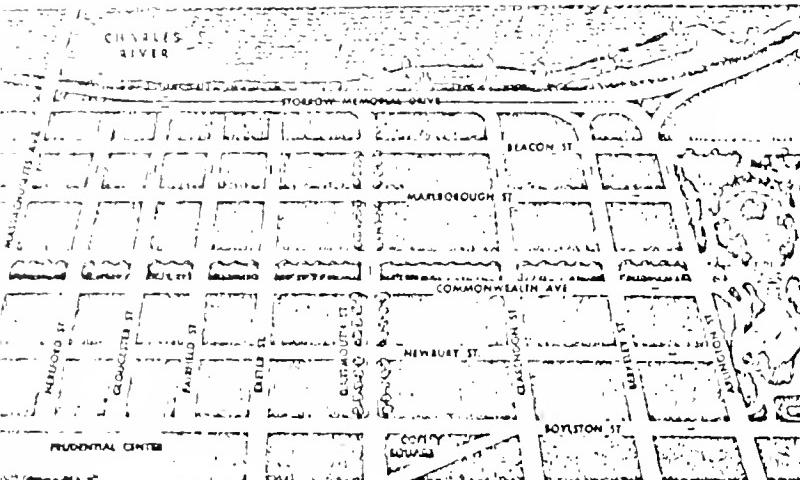
Sally Perry  
Resident, 123 St. Botolph Street

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The  
Neighborhood Association  
of the Back Bay

315 Dartmouth Street  
Boston, Massachusetts 02116  
247-3961

July 11, 1980

Secretary John Bewick  
Commonwealth of Massachusetts  
Executive Office of  
Environmental Affairs  
100 Cambridge Street  
Boston, MA 02202

C-26

Dear Secretary Bewick:

RE: PEDESTRIAN WIND ENVIRONMENT AT COPLEY PLACE, BOSTON, MA.  
Interim Status Report by L. J. Fortier of Bolt, Beranek and Newman Inc. June 1980 Prepared for Urban Investment and Development Company

After a reading of the above report it is apparent that the construction of Copley Place will increase wind conditions for pedestrians at several locations including the entrance to Trinity Church, Copley Plaza entrance and several street corners on Huntington Avenue including Harcourt, Exeter and Dartmouth.

The report does not indicate how often wind speeds in excess of 13.6 meters per second, which is currently viewed by professionals working in wind engineering as a speed above which winds become generally unacceptable to pedestrians, will occur at these locations nor of what duration. It would perhaps be helpful if the report could indicate what wind speed and direction for the general Boston area produces the 13.6 mps winds at the several pedestrian-level sensor locations noted in the preliminary survey.

We wish to emphasize the importance of proper assessment of wind impact in the Back Bay. The problem must be addressed adequately and measures to mitigate harm must be studied thoroughly before the project is allowed to proceed..

Very truly yours,

NEIGHBORHOOD ASSOCIATION OF THE BACK BAY

By

Warren A. Johnson, Chairman  
Development Committee

## 8.2 Responses to Comments

### F-1-1

Regarding the continued design review for the project, the City and the developer have agreed to a design review process included in Appendix K of the document.

In addition, the design review subcommittee of the Citizens Review Committee has been reviewing the design of the project during July and August of 1980 and is preparing its recommendations to the Massachusetts Turnpike Authority. The Massachusetts Turnpike Authority will continue to monitor the design and construction of the project to ensure that the project conforms to the Final Plans, as adopted by the Turnpike Authority.

A Federal historic preservation review process with the Massachusetts Historical Commission (Section 106 of the National Historic Act of 1966) has been conducted. Recommendations have been forwarded to the Advisory Council on Historic Preservation by the City for inclusion in a Memorandum of Agreement.

### F-1-2

Pursuant to Section 106 of the National Historic Preservation Act of 1966 and the regulations of the Advisory Council on Historic Preservation (36 CFR Part 800), the City of Boston has consulted with the Massachusetts State Historic Preservation Officer to determine the effect, if any, of the Copley Place project on adjacent National Register properties. Since final plans and specifications, including a final selection of facade materials, have not been submitted, it has been determined that any potential adverse effect of the construction of Copley Place on the adjacent National Register properties will be successfully mitigated by the City, the SHPO, and the Advisory Council entering into a Memorandum of Agreement containing the following stipulations:

- 1) Prior to commencing construction of the above-grade portions of the retail center, hotels, housing, and office buildings components of the project, the City of Boston will submit final plans and specifications, together with samples of facade materials to be used, to the Massachusetts State Historic Preservation Officer for review and approval. If, after review, the State Historic Preservation Officer is of the opinion that the undertaking will have an adverse effect on the above-mentioned properties, the City will request the comments of the Council in accordance with Section 800.4(e) of the Council's procedures.
- 2) Non-brick facade material used for the housing component of the project, including material used for window bays and for horizontal bands at the floor lines and balconies, shall be of the same or compatible masonry material as that selected for the overall masonry material of the other components of the project. the use of a "dryvit" is not an acceptable application in this instance.

Accordingly, the City has submitted its finding to the Advisory Council for preparation of a Memorandum of Agreement (see letter, Appendix G).

F-2-1

See response F-1-2.

F-2-2

The public services sections of the draft report addressed the service demands of the Copley Place project on police and fire protection, on water supply, sewer capacity, schools, medical facilities, solid waste collection and on neighborhood services. The demands for each of these service areas were compared with availability of the services demanded. In most cases the availability of the service demanded was verified with the agency responsible for providing the service. For instance, the Boston Water and Sewer Commission supplied a letter stating that it could provide the water required by the project, and that existing sewers and waste treatment facilities could handle the project's discharges. None of the service agencies indicated that Copley Place would contribute to a serious cumulative demand problem.

The air quality consultants who prepared the referenced studies spent a considerable time discussing appropriate methodology and assumptions with the Massachusetts Department of Environmental Quality Engineering (DEQE) during the Summer of 1979. The U.S. Environmental Protection Agency (EPA) was invited to participate in those discussions. Instead, however, EPA deferred judgement on technical guidance to DEQE, indicating that the program of studies suggested by the State would be accepted as adequate by EPA. Based on this understanding, the consultants and DEQE negotiated a detailed scope of work. This scope of work called for basing the impact assessment upon modeling techniques, exclusively. DEQE agreed to this approach only after reviewing detailed documentation of the applicability of the models to the intended air quality analysis. It was agreed that no site specific validation or calibration of the models was required.

Following the establishment of agreement on the scope of work between the DEQE and the consultants, EPA was contacted. The consultant explained the proposed scope of studies to two technical representatives of EPA before initiating the modeling. It was explained that the analysis would rely on modeling techniques, and that no validation, beyond what had been done for DEQE, would be undertaken. The EPA representatives concurred in this approach.

The use of modeling approaches was deemed acceptable by all technical reviewers based on the unique character of the project. It was decided that any monitoring would apply only to the existing and no-build alternatives. The project, as proposed, creates such significant changes in urban geography and traffic that monitoring of existing cases would be useless for either background or validation purposes.

### F-3-2

The current locations of the portals in the ventilation system have been incorporated into the analysis in the Final EIR/EIS. Downwash was considered in the modeling of the emissions from these ventilation portals. In addition, the dispersion from the major ventilation portals was examined in the wind tunnel analysis. The results of those studies are incorporated in Section 7.6.6 of this report.

### F-3-3

Each of the dust control measures cited in the draft report will be implemented. UIDC will instruct its contractors to undertake the following mitigating measures:

- watering during periods of high winds;
- minimizing the period when spoils are stored at the construction site;
- locating aggregate storage piles away from sensitive receptors, such as the Harcourt Street residential area; and
- monitoring of actual construction practices to ensure that unnecessary transfers and mechanical disturbances of loose material are minimized.

### F-3-4

The Boston Area Transportation Control Plan (TCP) for reducing air pollutants is composed of many elements seeking to constrain automotive use, such as emphasizing public transit, encouraging carpools and multi-occupancy vehicles (where appropriate), and instituting parking management programs.

The Copley Place parking garages relate to the TCP by their compliance with the Downtown Boston parking freeze for commercial spaces and the restrained allowances for non-commercial spaces, recognizing a relatively high transit and pedestrian modal split. The parking freeze permit, issued January 23, 1979, and amended February 2, 1979, indicates a total capacity of 1821 spaces with 860 spaces requiring freeze trade-offs. Of these, 231 spaces were allocated outright, and 629 were provisionally identified, subject to availability. The availability of these spaces seems reasonably well-assured at present since they will be freed by the Park Plaza/State Transportation building project, the "Tent City" site development, and the "Green House" project on Huntington Avenue, all of which have been initiated or have strong commitments.

In addition, since the Copley Place development program has been revised, the final parking supply will be reduced to about 1500 spaces. This is subject to review by the Boston Air Pollution Control Commission, at which time the final program will be defined.

The Copley Place development relates well to the TCP in a number of other respects. It represents new development at a central location which will be well served by two transit lines (Green and Orange), commuter rail, and inter-city rail. This is to be contrasted with an alternative of locating such development in a suburban or scattered setting, thereby creating greater auto-dependence and vehicle miles of travel.

For those determined to approach Copley Place by car, the location is such that access to major roadway facilities, notably the Massachusetts Turnpike, is reasonably direct, keeping travel on city streets to a minimum. Once at the proposed development, the variety of services and activities in the area should result in multi-purpose trips, thereby avoiding extra vehicular travel.

The Resident Parking Sticker Program, described in response S-1-16, is yet another way of restraining auto access to the area.

### F-3-5

The data used for the vehicle type mix was based on Massachusetts Turnpike data supplied by Norman A. Abend. The vehicle type breakdowns are as follows:

	<u>1-Hour</u>	<u>8-Hour</u>
LDV	85%	83%
LDT-1	12%	11%
LDT-2	1%	2%
HDG	1%	2%
HDD	1%	2%

For all roadway links, the national average operating conditions were used. These included 20.6% cold start and 27.3% hot start.

### F-3-6

The 8-hour averaging period assumed two hours of peak-hour emissions and 6 hours of off-peak emissions. The meteorological modeling conditions assumed 1.0 m/sec wind speed, stable atmospheric stability and an ambient temperature of 20°F. However, to properly reflect the fact that such severe conditions are not likely to persist for 8 consecutive hours, results obtained were adjusted by a "meteorological persistence" factor of 0.6, recommended by the U.S. EPA (EPA 1978).

### F-3-7

The results presented in Table 7.6-2, on page 7-113, are in units of parts per million (ppm) while Figure 7.6-3, on page 7-11, presents the results in milligrams per cubic meter ( $\text{mg}/\text{m}^3$ ). An approximate conversion factor is 9 ppm = 10  $\text{mg}/\text{m}^3$ .

In addition the barchart for the "build" case was slightly shorter than it should have been. This error has been corrected. See Figure 7.6-3 of this report.

F-3-8

The air quality receptors modeled at the critical locations were located so as to be consistent with current EPA guidelines (44FR27594). These guidelines recommend a minimum distance of 2 meters and a maximum distance of 10 meters from the edge of the nearest traffic lane (i.e., curbside). Receptors number 7 and 10 are about 6 meters from the curb, all other receptors are 2-3 meters from the curb.

F-3-9

The description of receptor location number 1 on page 7-106 should be Huntington Avenue, between Exeter and Dartmouth Streets.

F-3-10

The traffic noise prediction methodology was based upon the FHWA Highway Traffic Noise Prediction Model outlined in FHWA-RD-77-108. This model is the most recent highway noise prediction model compiled by the Federal Highway Administration. As pointed out by EPA, the model was designed primarily to predict noise levels associated with constant speed highway traffic links. The manual for the model, however, has an appendix (Appendix 1) which deals with interrupted flow (stop and go traffic). This appendix points out that

"No detailed study on the effects of interrupted flow was found in the U.S. The NCHRP 117 provides some guidelines and these are reproduced in Table I-1. Since no reference is cited, these should be treated as rules of thumb."

Table I-1, Adjustment for  
Interrupted Flow

Vehicle Type	Adjustment (dB)	
	$L_{50}$	$L_{10}$
A	0	+2
HT	0	+4

The NCHRP Report 117 assumes that interrupted flow imposed by a traffic control signal influences the operating noise of a vehicle over a distance of 1000 feet centered at the center of the signal area. This is probably based upon the fact that a truck accelerating from a stopped condition would produce a maximum noise level over this distance while accelerating to cruise condition. This distance is a function of both the grade and how heavily the truck is loaded."

The appendix continues with a suggested technique for adjusting for interrupted flow. It suggests that for automobiles and medium trucks the reference levels at 50 km/h should be used, which is exactly what was done for Copley Place. It also suggests that a reference level of 87 dBA be used for heavy trucks in interrupted flow, rather than the 80.3 dBA associated with a constant speed of 50 mph. For several reasons, however, this latter adjustment was not considered to be appropriate. The following are the major considerations involved in the decision:

- 1) Many of the links, and most of the traffic volume modeled is constant speed traffic on the Massachusetts Turnpike and its ramps. Traffic on other links modeled (e.g., Huntington Ave.) is often constant speed traffic, as well.

- 2) The traffic is but one contributor to the peak noise levels. Noise levels are also affected by rail noise, HVAC and urban background levels which are not affected by the traffic noise assumptions.
- 3) Noise levels modeled for the existing case compared well with the actual noise levels measured at the site. For this reason it was decided that no modifying factor for stop-and-go-traffic was required. This may be the case due largely to the small number of heavy trucks in the traffic flow of the study area during peak noise periods.
- 4) The same modeling approach was applied to existing, build, and no-build cases. Therefore, any potential for lack of accuracy associated with the modeling was applied equally to all cases. This, in itself, provides for an equitable comparison of the relative noise levels associated with the project alternatives, which is the objective of the analysis. The noise consultants are not aware of any more appropriate numerical modeling techniques applicable to the Copley Place project.

F-3-11

Neither the Department of Housing and Urban Development, nor the Department of Transportation noise assessment guidelines suggests quantitatively relating noise levels to the population impacted. As a result, no survey has been undertaken to identify the number of people in the area immediately surrounding the site. It is estimated, however, that there are less than 20 permanent residents in the dwelling units along Harcourt Street. (There are probably hundreds of residents in the Gloucester Apartments adjacent to the corner of Huntington Avenue.) A much greater population resides in

the South End, in Back Bay, and in the St. Botolph Street neighborhood, each of which is within a short distance of the Copley Place site. All these population groups will be subject both to the short-term construction impacts, and to the predicted decreases in future noise levels. Please note that both the noise monitoring and modeling locations that were selected are representative of these existing residential areas, as well as the residential units included in the Copley Place design. (See pp. 7-15 and pp. 25-26 of Copley Place Noise Levels Report, December 1979.)

#### F-3-12

The topic of noise abatement was addressed in the Draft EIR Supplement/Draft EIS on page 7-145. Mufflers will be used wherever feasible, along with up-to-date equipment which generates lower noise levels. During latter phases of construction, barrier effects will occur, as shielding associated with the new building facades reduces noise exposures at nearby sites. The barrier effects of this type reduce noise levels from 1-10 dB.

#### F-3-13

Hourly  $L_{eq}$  values were monitored. These correct hourly  $L_{eq}$  values were then used as the basis for calculating the 24-hour  $L_{eq}$  using arithmetic averaging. To calculate  $L_{dn}$  10dB were added to the hourly  $L_{eq}$  values from 10:00 P.M. to 7:00 A.M.

The hourly  $L_{eq}$  values were not combined by Log addition. Note that Log addition of the hourly  $L_{eq}$  values would result in a 24-hour number greater than the peak hour  $L_{eq}$ , which is clearly incorrect.

F-4-1

See response to comments F-1-2.

F-4-2

Pursuant to CEQ regulations, 40 CFR 1502.16, the discussion of those topics required by sections 102(2)(c)(ii), (iv), and (v) of NEPA have been consolidated within the text of Section 7 of the EIR/EIS, Probable Impact of the Project and its Alternatives on the Environment.

F-4-3

UMTA is noted as a cooperating agency in the title page for the Final EIR/EIS.

The comments of the BRA on the interim status report were used to guide in the preparation of the final wind report, which is summarized in Section 7.7 of this report. Each of the seven issues enumerated by BRA has been addressed.

In addition, consideration of mitigating measures is continuing beyond submission of the Final EIR/EIS. The wind consultant has undertaken a considerable amount of supplementary analysis which is not reflected in the final wind report. This analysis includes sensitivity studies of the effects of changing building heights and orientation. This information is being submitted to BRA for its review prior to design approvals for Copley Place.

F-6-1

The final wind report includes average wind velocities, as well as effective gust velocities, as part of Table 1.

F-6-2

The final report includes corrections in which all units are expressed in both meters per second and miles per hour.

S-1-1

There are two ways in which the shadows resulting from Copley Place could be eliminated from Copley Square and Trinity Church. First, the luxury hotel tower located on the triangle site could be reduced in height. In order for the offending shadows to be eliminated, the hotel would have to be even shorter than the adjacent Boston Public Library and Copley Plaza Hotel. This solution would not be feasible, either in terms of dollars or design, according to the developer. The second way the shadows could be eliminated from the Square and Trinity Church, in winter, is by relocating the hotel tower. During the earlier design process described in Section 3 of the Draft report, many locational configurations were examined in terms of various impacts including access, traffic, pedestrian attraction, and links to surrounding areas, as well as financial feasibility. The present design is the result of these studies, implying that other hotel locations are not feasible.

See Figures 7.3-8 through 7.3-19 for improved shadow diagrams.

S-1-2

The authors apologize for the poor print quality of the shadow graphics in the Draft EIR Supplement/Draft EIS. Improved figures are included in Section 7.3 of this report.

While shadow diagrams of Copley Place project, standing alone, could be prepared and presented their inclusion by themselves would have little association with impacts since shadows from these buildings often fall within the same shadow pattern produced by nearby structures, such as the John Hancock Tower or the Copley Plaza Hotel. This is especially true of Trinity Church under winter sun conditions. The proposed Western Hotel Tower would shadow the western face of the church for a very brief period between 2:30 and 3:30 P.M. in spring

and fall. The masses of the John Hancock and the Copley Plaza Hotel would dominate the afternoon shadow in all other cases (see Figure 7.3-11).

In the case where the Copley Place project is the principal source of shadow, such as between noon and 4:00 P.M. during winter, on the Public Library, the existing shadow diagrams adequately demonstrate the impact of the project.

#### S-1-3

Comments on that report were received and reviewed. the report was revised and improved and has been submitted in support of the Final EIR/EIS.

#### S-1-4

Commitment has been made by the City to a Resident Parking Sticker Program for the Copley Place impact area, as described in response S-1-16. This program should go far in eliminating indiscriminate parking of construction workers in the area.

In addition, the firm requirement for the hiring of Boston residents on construction, at a level of 50%, will help reduce the impact of construction worker vehicles. Although some construction workers may prefer to use their cars to carry tools and equipment, it is well-known that, on the average, a City of Boston resident has much better transit access to the urban area as a whole, and also has a lower level of car ownership.

Discussions with the project proponent have indicated that they fully intend, through their construction contracts, to use available site areas to the maximum for construction parking, and to manage the access of site workers to reduce the number of cars used.

The potential effects of the Copley Place project on the ground-water table underlying the Back Bay and potential related impacts on nearby structures are well recognized and have been evaluated in the Draft EIR Supplement/Draft EIS; reference is given to Sections 6.9 and 7.9 entitled "Geology and Hydrology."

As stated in the Draft EIR Supplement/Draft EIS, the primary concern regarding dewatering of the soil around pile caps during construction of Copley Place foundations is the potential for lowering the surrounding water table to such an extent that the wooden piles supporting nearby structures (such as the Boston Public Library, Trinity Church, and the Copley Place Hotel) may deteriorate upon exposure to air, thus weakening their foundations. Any depression of the water table in these locations depends on the quantity of water pumped out of the pile cap excavations and the permeability of the soils in the area.

An ongoing, detailed study of the soils at the Copley Place site will be completed prior to commencement of construction. A primary objective of this study will be a thorough determination of the extent of construction dewatering effects on the local ground-water table. In addition, as required by the Massachusetts Building Code, soil tests will continue and observation wells will be installed around the site to monitor the ground-water table during construction. If either the soils testing or monitored levels in the observation wells indicate the potential for adverse impacts to nearby structures, mitigating steps will be taken to eliminate such impacts. These mitigating measures will include:

- Dewatering of only 10 to 15 pile caps at any one time. This procedure should localize effects and minimize the quantity and extent of dewatering, thus decreasing any drawdown of the ground-water table in the area.

- Emplacement of sheet piling around each pile cap excavation during dewatering to a depth of approximately 10 feet below the top of the pile cap. The potential effectiveness of such a measure will be determined on the basis of detailed on-site soil borings. If the sheet piling fully penetrates the upper, highly permeable soil zone, this measure would significantly inhibit inflow of groundwater into the pile cap excavation and, thus, significantly reduce the extent of dewatering required.
- Positioning of recharge wells at the perimeter of the site to maintain groundwater levels under nearby structures by pumping water back into the ground. Proper placement and maintenance of recharge wells could effectively control groundwater levels in the wooden pile-supported structures in the vicinity.

#### S-1-6

See response to comment F-1-2.

#### S-1-7

The author of this comment observes a discrepancy between the columns marked "Percent Increase due to Copley Place" and "Copley Place Add-on" in the first three intersections listed in Table 5-5 of the Transportation Impacts Study. Although it would seem at first glance that the percentages shown in the "Percent Increase" column would necessitate traffic volumes of 1200, 450, and 700 in the "Add-on" column, such is not the case. The numbers are correct as shown in the table. It should be noted that changes in traffic volumes in these three intersections between 1978 and 1995 are not due solely to add-on traffic generated by Copley Place. Rather, the

development of Copley Place will also involve significant rerouting of ambient traffic in these three locations, particularly through the closing of Turnpike Ramp "C". Thus, the "Percent Increase" column includes the effects of these reroutings, as well as the effects of traffic generated by the development.

A discrepancy is also noted between Table 4-9 and Figure 5-1 of the Transportation Impacts Study. Here, the commenter cites a total approach volume of 170 vehicles is given on Table 4-9, while "all three of the approach volumes" in Figure 5-1 are shown as "less than 25 vehicles." Thus, it would appear that 100 vehicles are missing from Figure 5-1. Once again, such is not the case, and the report is correct as shown. There are actually five, not three, approach volumes to Copley Place when Harcourt Street and Triangle Hotel entrance volumes are added to the infield area approaches. Furthermore, volumes, as shown in Figure 5-1, have been rounded to the nearest 50, and the "50" shown entering the Triangle Hotel area actually shows as "70" in more fine-grained analysis.

#### S-1-8

The capacity calculations at Huntington/Harcourt show that the intersection can operate at Level of Service C and still use only half of the available cycle time on the assumption that the Huntington Avenue approach widths are 36 feet, without parking. This is equal to existing conditions. This intersection can operate at Level of Service C, even with two lane approaches on Huntington. The intent of the final circulation plan was to return the street system, to the extent possible, to its existing condition.

At the intersection of Huntington and Exeter with the Copley Place parking garage, the design hour capacity calculations show that with a three lane approach cross-section, Level of Service C can be achieved using only 80 to 90 seconds of the available 100 second cycle. If the Level of Service were dropped from C to D, the intersection could

operate with two lane approaches for through traffic on Huntington Avenue within the 100 second cycle. It should be noted that in an eastbound direction, the third lane of traffic is likely to operate as a right turn lane for turns into the Copley Place garage.

Pedestrian/sidewalk neckdowns are not shown on the plans since they are only applicable in areas which provide curbside parking. It should be noted, however, that the roadway width of Huntington Avenue has been reduced. For example, the eastbound approach has been narrowed from about 50 feet to 36 feet. Dartmouth Street, between Stuart and St. James, has also been narrowed by about ten feet. In no instance is an existing street widened.

Under current proposals, there is a considerable amount of cycle time available for pedestrian crossings of Huntington Avenue and cross streets, even during peak hours. If the approach widths are reduced, it will require longer vehicle phases and a reduction in potential pedestrian time, even though the crossing distances will be shorter. In effect, this will only produce shorter pedestrian phases with the shorter crossing distances.

#### S-1-9

The most recent plan for the access at Copley Place does allow left turns out onto Huntington Avenue. The original plan did not show left turns out because it would have resulted in an undesirable design of the Huntington Avenue median. Changes in the project design, however, improve the angle of approach to Huntington Avenue, thus allowing this left turn. Left turns directly onto Huntington Avenue will result in a reduction in demand at the Dartmouth/Stuart and the Dartmouth/St. James Street intersections, thereby increasing net capacity.

Insofar as the "U" turn to and from Huntington Avenue west is concerned, the roadway, at present, makes no provision for this movement. It represents an unauthorized turn that is made

in the slot designed for the "U" turn from Huntington to Stuart which will be continued. The "U" turn in question does not offer any traffic advantage. There is also a possibility that this movement was inadvertently added to the traffic volume sheet used by CTPS. Several observations at the intersection found no one making this turn. Thus, the analysis assumed that it would either continue to be made as an unauthorized movement or would disappear.

The "U" turns from Huntington to Stuart are expected to queue up in the same lane as left turns into Copley Place. This may result in times when "U" turns will be blocked by the left turn queue, but these "U" turns will clear out when the left turn phase is running so any delay will be only temporary. This will not cause any problems in queue length or operations.

#### S-1-9A

At the Stuart/Dartmouth Street intersection, the existing island that separates turns from through traffic will be enlarged to provide a more substantial pedestrian refuge. A second island is also proposed at the southwest corner of the intersection by providing some channelization of the right turn from Stuart to Dartmouth southbound (Figure 5-3). In addition, the southbound roadway on Dartmouth Street, south of Stuart Street, has been reduced in width by about one lane.

#### S-1-10

The volume-to-capacity ratios that were calculated are based on Level of Service D. Under this condition, only the Boylston/Dartmouth Street intersection, with a pedestrian phase, comes close to a V/C ratio of one. A ratio greater than one would merely indicate that the intersection would be operating at the lower end of Level of Service D, or at the high end of LOS E, which should be acceptable for this part of the city during peak hours.

## S-1-11

The exit roadway from the garage has been designed as a two lane roadway. In the Draft EIR Supplement/Draft EIS, Figure 5.3 gives the appearance of a single lane approach, but it has always been designed as a two lane exit.

The Boston Traffic and Parking Department, in reviewing the 25 percent plans for Copley Place, recommended that the left turns out of the general parking access be allowed, and this has since been incorporated into the plans.

## S-1-12

The traffic signal system for the entire Back Bay area is based on a 100 second cycle during the peak hours, which run from 6:00 am to 10:00 am, and from 3:30 pm to 6:30 pm. During off-peak periods, the cycle length is 80 seconds. It would not be possible to change the cycle length at the intersections near the Copley Place site without changing the entire traffic control program in the Back Bay.

The capacity calculations do indicate that most of the intersections can be timed to allow longer pedestrian cycles. These opportunities have been identified in the capacity calculations. The intersections immediately surrounding the project area now operate, and will continue to operate, at levels well below capacity, resulting in excess green time. However, this situation is limited to a few intersections because of their position in the overall street network. It would certainly be possible to convert excess green time to pedestrian amenities if the Traffic Department is in agreement.

The capacity calculations indicate that during peak hours, the Harcourt Street/Huntington Avenue intersection has about 50 seconds available exclusively for pedestrians, the Huntington Avenue/Exeter Street intersection about 20 seconds, the Dartmouth/St. James Street about 20 to 40 seconds, and the Dartmouth/Stuart Street between 20 and 25 seconds. These times

are in addition to pedestrian movements that could run simultaneously with non-conflicting or minor vehicular flows.

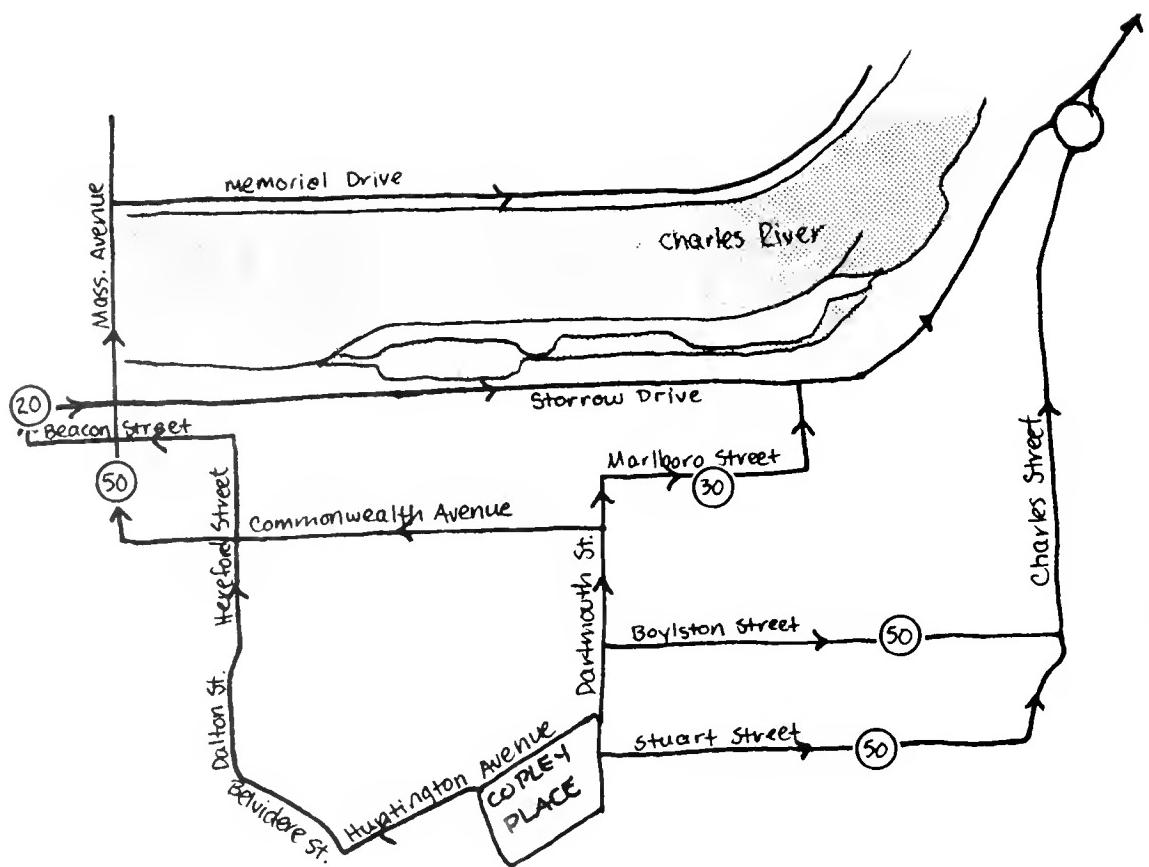
The traffic capacity analysis did indicate that even now, additional pedestrian time could be provided without any adverse effect on traffic movements.

#### S-1-13

Figure 7.4-3 of the Draft EIR Supplement/Draft EIS, Copley Place PM Peak Hour Traffic, shows an assignment to Berkeley Street of 200 vehicles, which subsequently continues onto Storrow Drive. Based on the traffic assignment percentages contained in Table 7.4-7, this consists of trips to the north/northeast (N/NE) sector. Figure 7.4-3 shows that 65 percent of this demand, equivalent to 200 trips per day, would use Berkeley Street.

The attached figure shows a reassignment of these 200 trips, taking into consideration travel times on the existing street network. Based on the reassignment of this traffic, two major alternative routes become evident. One is the Charles Street route reached by either Boylston or Stuart Street, or a somewhat longer, but equally rapid routing that involves travel through the Charlesgate area and/or Massachusetts Avenue to Memorial Drive. All of these routings provide a reasonable alternative way of getting to the N/NE destinations from Copley Place. Should Berkeley Street congestion or delays continue as they do now, it is quite likely that the Copley Place trips or others that are now using Berkeley Street would divert to these alternative routings. The routing via Massachusetts Avenue to Memorial Drive not only shows up as feasible using the network speed figures, but was found to be an actual routing used by people who work in the Copley Square area.

Should none of this traffic be diverted and the worst possible condition be experienced, there are two ways that the effect would be felt. One would be through an increase in capacity and volume during the peak hour that would allow an



REALLOCATON OF 200 TRIPS ASSIGNED TO BERKELEY STREET

additional 200 vehicles to move. Modifications to signal timing, improved enforcement of illegal parking or removal of curb parking are inexpensive ways of increasing Berkeley Street capacity. If this is the case, then the peak hour would increase from about 1,100 vehicles to 1,300 vehicles per hour with little effect on speeds.

If this is not the case, and the additional vehicles must be handled by Berkeley Street, it would have the effect of extending the peak period by about 11 minutes. This is based on the existing peak hour flow on Berkeley Street of 1,075 vehicles over a 60 minute period, which is equal to 11 minutes to handle the 200 cars generated by Copley Place.

The experience in Back Bay, however, is that the evening peak hour is at least two hours long, extending well beyond the 5:00 pm closing time of most businesses. Under this circumstance, there is some question as to whether the net effect of greater local traffic generation will result in an extension of the peak hour, or whether it will force a change in travel mode. To be on the conservative side, the air quality calculation should be based on an extension of the peak hour by 11 minutes.

S-1-14

As a result of alternative routes and volumes for the 200 northbound Copley Place vehicles which had originally been routed down Berkeley Street to the Storrow Drive northbound on-ramp, four of the eleven critical receptors were impacted. These were receptor numbers 5, 7, 9, and 10. Subsequent modeling of the new traffic at these critical receptors indicated the results presented in the table below. At three of the receptors, concentrations are seen to increase slightly, however, the total pollutant concentrations remain below the ambient standards. At receptor number 10, concentratons actually decrease since the traffic volume has redistributed itself on alternate streets.

The changes on these other streets, however, are not sufficient to warrant the identification of any additional "critical receptors".

<u>Crosscut No.</u>	<u>Old 1-Hour</u>	<u>New 1-Hour</u>	<u>Old 8-Hour</u>	<u>New 8-Hour</u>
5	23.6	25.3	8.8	9.1
7	24.4	25.1	8.9	9.0
9	7.0	7.3	3.7	3.8
10	18.2	15.3	7.6	7.1

(Units of mg/m<sup>3</sup>)

S-1-15

The 1983 no-build alternative results for the 8-hour carbon monoxide concentrations at receptor locations #1, 3, and 5 are predicted to be higher than the corresponding concentrations in the build alternative, even though traffic was seen to increase at these locations due to the build alternative. The reason for this result is the increased effective mixing zone, and therefore greater dilution, at all these locations created by the presence of a street canyon produced by the construction of the project.

In addition, the Environmental Research & Technology, Inc. (ERT) review of the basis of the EOEA memorandum on the persistence factor relating maximum 1-hour CO concentrations to the maximum 8-hour values revealed that the analysis was based upon Kenmore Square data. A comparison of ratios of peak hour traffic volume to off-peak volumes with those in the vicinity of Copley Place indicates that this ratio is expected to be significantly higher at Kenmore Square. Thus, the 0.6 ratio which has been previously reviewed and approved in the air quality modeling analysis for Copley Place is deemed to be more appropriate than the 0.75 value noted for Kenmore Square.

S-1-16

The Commissioner of Traffic & Parking has agreed, with the assistance of the BRA, to develop and implement a resident sticker parking program for the Copley Place impact area. The timetable for the establishment of this program will be coordinated with the construction schedule for the Copley Place Project. (See attached letter.)

Funds have already been allocated for the formulation of a resident parking program through a Section 175 grant from the Environmental Protection Agency (EPA) to the BRA and Traffic & Parking Department. Planning work already has begun on this study, which also has the intent of investigating the air quality improvements which may result through such a program. The end product of this study will be a specific implementation plan for those neighborhoods which have a need and desire for a resident sticker parking program.

Close coordination will be necessary between the community, the BRA, Traffic and Parking Department, and the Police Department to insure that there is concurrence on the program boundaries and enforcement options and to ensure equitable parking for both residential visitors and patrons of community businesses.

MAY 1 1960

MAY 1 1960

TRANSPORTATION PLANNING DIVISION

BOSTON RECEIVED

... 2010 April 28, 1980

Robert Ryan, Director  
Boston Redevelopment Authority  
One City Hall  
Boston, Massachusetts 02201

BOSTON REDEVELOPMENT AUTHORITY  
OFFICE OF THE DIRECTOR

**Re: Copley Place and Resident Parking Programs**

Dear Mr. Ryan:

I would like to take this opportunity to acknowledge your recent request that a resident sticker parking program be considered for neighborhoods abutting Copley Place in harmony with the Copley Place development project.

Let me first say that it is departmental policy, as expressed by programs implemented in Beacon Hill and Bay Village, to support wherever feasible the concept of providing on-street parking for residents of neighborhoods where insufficient off-street parking supply exists. It is our intent to continue to pursue this policy in the future and that portions of the Back Bay and the South End, which are the neighborhoods that will be directly impacted by the Copley Place project, definitely qualify for consideration as recipients of a resident parking program.

It therefore will also be our intent to carry out the formulation and implementation of a practical and coordinated parking program for the impact area consistent with the established timetable for the Copley Place development project. This consequently will require a close work effort between the BRA, this department and the community in acquiring the necessary Police Department enforcement and compliance with criteria already established to insure the implementation of a successful resident sticker parking program for any neighborhood.



Kevin H. White, Mayor / TRAFFIC AND PARKING DEPARTMENT / Boston City Hall / City Hall Plaza 02110

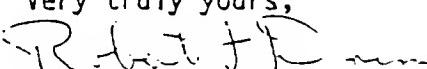
Robert Ryan, Director

April 28, 1980

-2-

As a means of assisting you in this area, I have asked Phil Caruso of my staff to work with the BRA and whoever else you desire for providing insight to the necessary steps for achieving such a program.

We look forward to working with you in the future on this issue and if we can be of assistance in any other way, please let us know.

Very truly yours,  
  
Robert J. Ryan  
Acting Commissioner

RFD/PC/ej

S-1-17

As noted in the comment, Copley Place is not expected to have a significant impact on Green Line ridership, so the issue of whether the capacity of the Green Line will increase from 11,000 to 23,000 riders is moot. The higher figure was provided by the MBTA and was based on greater vehicle capacity and projected improvements and operating conditions on the Green Line. The use of higher capacity vehicles would reduce loading time, and would probably increase headways, thus avoiding some of the severe peak hour crowding and extremely low travel speeds. Whether or not a doubling of capacity is possible, assuming 100 percent use of LRV's, it is fair to say that some capacity increases will result from the use of the larger cars, even though a 100 percent increase may be optimistic. In any case, the effect would not change the Copley Place public transportation route assignment, or the modal split.

S-1-18

While there is some potential for a four day work week, or the use of flextime, which requires an employee's presence during a core part of the day, but permits flexibility in arrival and departure times, the project impacts have been estimated on the basis of a standard five day, 35-40 hour week. With the potential for new office operations occupying the space in Copley Place, there is a greater chance that innovative employee work schedules will be incorporated from the outset than would be the case in expecting a change in existing conditions at existing business locations.

A number of companies in downtown Boston already operate on a four-ten hour work week or flextime, with generally favorable acceptance by employees. This trend will probably continue if not accelerate, not only because of the time losses incurred during peak hour travel, but because of the potential energy savings that might accrue.

Before addressing the main question, it is appropriate to comment on the data upon which the comment is based. The tables are from Copley Place Transportation Impacts Study, Parsons Brinkerhoff, February 1980. Table 9-2, which summarizes pedestrian trips, includes all walking trips associated with the project, regardless of the primary mode of transportation. People who are expected to take transit to or from work have to be looked at simultaneously. Thus, 7,300 transit trips for both employees and non-employees in Table 4-6 also show up as pedestrian trips in Table 9-2. The modal split table shows only 700 employees walking to work, while the pedestrian trip table shows an additional 2,800 trips being made during the day by employees once they are at work. The actual number of true pedestrians vs. other modes in the traditional modal split analysis is much lower than 71 percent. See the attached table.

The commenter is not correct in noting that the goal appears to first satisfy automobile traffic, and then accommodate pedestrians during leftover cycle time. In fact, the pedestrians must be served along with automobiles by assigning a minimum display of the "walk" indication and allowing a clearance according to the width of the crosswalk. There is also some feeling that maintaining the quality of flow by providing coordinated signals and longer green times will result in energy savings.

Insofar as the four adjacent intersections associated with the project are concerned, automobile traffic volumes far exceed pedestrian volumes, not including any factor for an automobile occupancy greater than one. At the four intersections that were analyzed for capacity, none had pedestrian flows that exceeded automobile flows. The maximum hourly pedestrian crossings at any of the four intersections is about 1,000, whereas the total approach volume of automobiles at the heaviest intersections is on the order of 2,000 to 3,000

vehicles in 1978, and 3,000 to 4,000 vehicles in 1995, with Copley Place included.

It should be noted that in the traffic capacity calculations, reference was made to the available time for pedestrian crossings over and above those that could run simultaneously with traffic movements.

Total Daily Person-Trips = 20,300 (Table 4-2)

Auto	8,600	42%
Transit	7,300	36%
Walk	4,400	22%

Pedestrian Trips - 14,500 (Table 9-2)

Transit	7,300
Walk	4,400
Emp Pers. Errands	<u>2,800</u>
	14,500

S-1-198

A number of pedestrian amenities are included as part of the Copley Place project. The most significant of these is a bridge across Huntington Avenue on a diagonal between the Prudential Center and Copley Place. This is exactly in line with what has been identified as the most important pedestrian routing in this area of Huntington Avenue, associated mainly with the existing desire line between Back Bay Station and Prudential Center. Copley Place, lying on this demand axis, will enhance this pedestrian routing.

Another important pedestrian feature is the continuation of the Dartmouth Street Mall as part of the triangle. All

traffic signal phasings shown in the Urban Systems project associated with street improvements include either exclusive pedestrian crossings of these intersections, or reasonable alternatives. An underground connection from Back Bay Station to Copley Place to handle both Copley Place and Prudential pedestrian flows is being provided as an extension of the new Orange Line platform at Back Bay Station. (This is more fully covered in response S-1-20.)

The Urban Systems street designs show, specifically, the pedestrian crossings that will be provided, and present, in detail, the commitment of the traffic plan to satisfying pedestrian requirements.

Copley Place will provide an active and protected pedestrian path through the project rather than forcing pedestrians to walk around the complex. The combination of the new overpass between Prudential and Copley Place, the creation of an underground connection between Back Bay Station and Copley Place, as well as concerned treatment for pedestrians at the major intersections address the issue of pedestrians in a very positive way.

The City of Boston and the Turnpike Authority are currently working to resolve the issue of pedestrians and Ramp D.

#### S-1-20

This comment is correct in noting that a mid-block pedestrian crossing signal on Dartmouth Street may be useful. Although an underground connection between the MBTA station and Copley Place is being provided for the Orange Line, the traffic analysis, using the worst possible condition, did not assume this to be the case. Thus, there are some heavy pedestrian crossings of Dartmouth Street. There is a Copley Place entrance directly opposite Back Bay Station so that, a mid-block traffic signal should be seriously considered. Since the traffic volumes on Dartmouth Street are relatively low, and do not involve any turning movements at this location, there

should be no difficulty in designing a signal that can handle a heavy flow for pedestrian, as well as vehicular traffic. The only consideration for crossing here should be that the signal timing be coordinated with the traffic lights on Dartmouth Street at Columbus Avenue and Stuart Street. Since there is no clear-cut, large slug of through traffic on Dartmouth Street in either direction at this point, a closely tied in interconnection may not even be necessary.

Another consideration that will modify pedestrian volumes at the Dartmouth/Stuart Street intersection is that the new Back Bay Station will have a primary entrance to the east near Clarendon Street. Many of the pedestrians that now cross Stuart Street at Dartmouth Street do not show up as crossing St. James Street, thus many of them are probably headed toward the John Hancock building. A new entrance to the Back Bay Station, near Clarendon Street, should divert most of these trips so that the pedestrian crossing volume at the Stuart/Dartmouth Street intersection will decline. However, the attraction of the new Orange Line alignment via Back Bay could result in a large number of new pedestrian trips from Back Bay Station to Copley Square.

With regard to approximate crossing times and necessary queueing areas, all of the intersection capacity calculations indicate the time available for pedestrian crossings either during potential exclusive phases, or when certain automobile and pedestrian movements are running simultaneously. A large number, if not a majority, of the individual pedestrian crossings can be made simultaneously with traffic movements, mainly because of the one-way system in the area and the lack of turning opportunities. In some cases, pedestrians were assumed to move with the traffic, which would include some conflicts between crossing pedestrians and right turns. Where these situations occur, however, the turning movements are fairly low.

The only location with a potential queueing problem is the southeast corner of the Dartmouth/Stuart Street intersection

and this will have to be addressed if 1) there is no underground crossing between Back Bay Station and Copley Place, 2) there is no substitute at-grade pedestrian crossing of Dartmouth Street, and 3) there is no pedestrian access to Back Bay Station near Clarendon Street. If none of these conditions are met, it will be necessary to re-evaluate the storage area for pedestrians at the Dartmouth/Stuart Street intersection.

The crossing of Harcourt Street by pedestrians is expected to occur while Huntington Avenue through traffic is running. This is the longest phase of that cycle and provides time for pedestrians to cross Harcourt Street and the hotel entrance with the only conflicts being light volume right turns into Harcourt Street and the hotel concourse. The final design of roadways in this area will include some pedestrian refuge locations along this crossing, so a lengthy crossing will not result.

At Huntington Avenue and Exeter Street, the crossing of Huntington Avenue by pedestrians will be difficult to achieve during a single exclusive phase. There is some question as to the volume of pedestrians that would make such a crossing. The capacity calculations show that there are phases during the cycle when pedestrians can cross individual approach or departure legs without conflict. However, these phases are not necessarily simultaneous and thus do not offer a free unconflicting complete pedestrian crossing of Huntington Avenue. If the Huntington Avenue cross-section is maintained with three lane approaches, it should be possible to provide a nearly continuous pedestrian crossing utilizing some exclusive time and some of the phases during which left turns into Copley Place occur and when Exeter Street traffic is running.

A raised island between the two exit lanes of Turnpike Ramp "D", at first glance, appears to promote pedestrian safety without seriously interrupting traffic flow. Detailed consideration of this suggestion, however, reveals that it is not a feasible solution from the standpoints of design and traffic operations. From a design standpoint, accommodating a

pedestrian island between the two lanes of Ramp "D" would require that the ramp be widened by about eight feet. This widening necessitates shortening the nose of the ramp approximately 60 feet (see Figure 5-3, "Proposed Street Improvements," in the Transportation Impacts Study). From this relocated crossing point, sight distance down the ramp is inadequate for pedestrians on the northeasterly sidewalk to cross to the island safely.

A pedestrian with a one-second perception/reaction time can travel across one lane of the ramp in five seconds. Assuming an approach vehicle traveling 25 miles per hour (37 feet/second) this translates to a needed 180-foot sight distance down the ramp. From the relocated crossing point, sight distance is only 140 feet. Offsetting the barrier and bridge railing to improve sight distance along the ramp is not feasible due to the fact that grades and clearances of Ramp "D", as shown in Figure 5-3, are already critical. Widening Ramp "D" while maintaining these grades and clearances would require raising Stuart Street at the end of Ramp "D", which means the Huntington Avenue/Stuart Street Bridge over the Turnpike would have to be completely reconstructed. The site preparation costs of the Triangle Hotel would also increase greatly. Alternatively, both the Turnpike mainline and existing Ramp "B" could be depressed to accommodate the widened ramp as it passes over them, once again a very expensive proposition.

From a traffic operations standpoint, several objections can be raised against the island solution. First, any southwesterly relocation of the nose of Ramp "D" might encourage illegal and unsafe movements from Ramp "D" directly to the Triangle Hotel curb cuts on Stuart Street. Secondly, lane changing on Ramp "D" could not be permitted for a distance of 300 to 400 feet in advance of the island because of restricted sight distance for motorists coming around the curve of the ramp. This distance would normally be used by motorists for weaving movements in order to reach the right or left lane of Stuart Street, depending on their intentions to turn right

or left at the Stuart/Dartmouth Street intersection. If motorists are required to stay in their respective lanes through this distance, excessive weaving movements could result on Stuart Street with adverse effects. Finally, it is quite likely that errant motorists would hit the island relatively often, although vehicle/island damage could be minimized by the use of an attenuator device to cushion impacts (see the attached figure).

S-1-21

The deck over the Southwest Corridor is expected to be devoted, for the most part, to pedestrians and open space amenities. Access from the South End community to the Copley Place project will be from an entrance along the Southwest Corridor deck near Dartmouth Street across from Back Bay Station. Access to the community retail area will also be from that entrance and the deck itself. Also see response C-9: III Point 3.

S-1-22

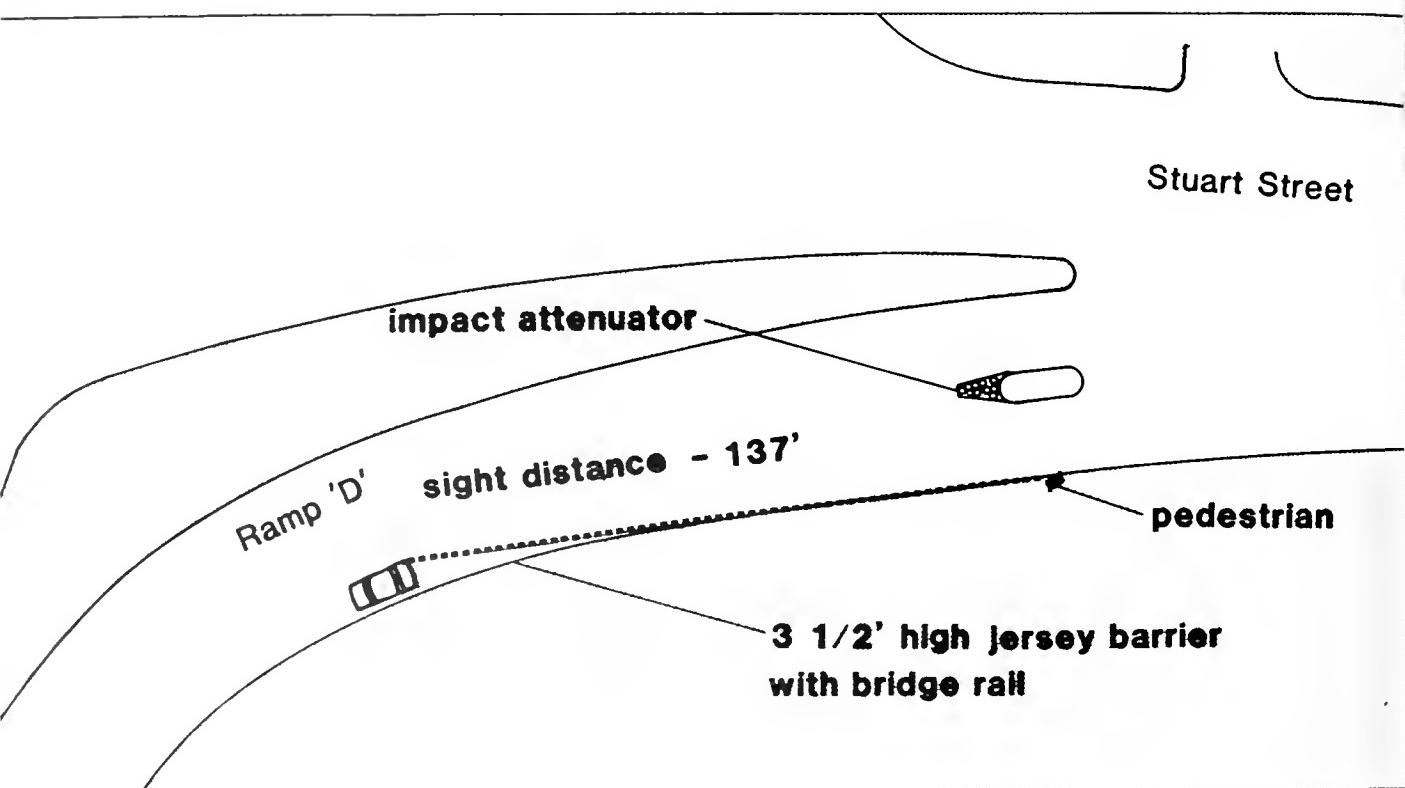
Pedestrian planning should include more than the utilitarian objectives of being able to move about safely without excessive crowding or barriers. More emphasis will be given to describing the visual and aesthetic experience from the viewpoint of the pedestrian as the design progresses.

Since the Draft EIR Supplement/Draft EIS was prepared, additional definition of exterior aesthetics has occurred. Exterior treatment of facade utilizes two-tone banding which distinguishes buildings such as the Boston Public Library, the Copley Plaza Hotel and Trinity Church. The two-tone effect is caused by both color changes in the precast exterior cladding and by textural changes in the precast. The bands are exposed, and lines and joinery are softened through use of chamfers. Vertical accents diversify the dominant, horizontal banding of

# COPLEY PLACE PROJECT

## Response to comment S-1-20

### Ramp 'D' with suggested island



two-tone precast and clear window stories framed in bronzed, anodized aluminum. The effect at pedestrian level is to eliminate the monolithic potential of a 5-story base (and 30+ story tower).

Neiman-Marcus display windows are located at the proposed Southwest Corridor Deck and the primary pedestrian focus in the large open plaza at the intersection of Stuart and Dartmouth Streets. The store frontage along Dartmouth Street is yet to be resolved. Glass facades housing restaurants and entrance-ways border Dartmouth Street at the Western International Hotel.

The proposed Southwest Corridor Deck will provide pedestrian access to the Neiman-Marcus store, the neighborhood retail store and the housing element. A portion of this project border may be solid wall surface due to the Turnpike off-ramps immediately behind. Heavy use of landscaping or other treatment to be determined in this area will soften the impact of the solid wall.

The Huntington Avenue border of the Western International Hotel will be actively devoted to the arrival and departure of hotel users by taxi and private vehicle. The treatment of the south side of Stuart Street, with regard to form and pedestrian movement, is yet to be resolved.

Movement through the axis of the project at mall level (elevation 151) will be exciting and diverse. This internal movement will also be possible from the intersection of Huntington Avenue and Dartmouth Street through the Western International Hotel, over the skywalk to the retail mall area.

S-1-23

Please note that City Noise Regulation #3 specifically excludes impact devices. The noise levels cited in the regulation apply only to non-impact equipment. For this reason the noise consultants predicted noise levels both with and

without impact devices. As shown in Table 7.8-3 of the Final EIR/EIS, peak noise levels, excluding impact devices are predicted to be slightly over the maximum levels at the Gloucester Apartments. The suggested residential level of 75dB may be exceeded at Harcourt Street as well. At the other four abutting sites the predicted peak, non-impact noise levels are below the levels specified in the regulation.

Also see response F-3-12.

S-1-24

There are a number of ways water is discharged from a building other than via the sewer. In a project like Copley Place, large amounts of water evaporate through the heating and cooling systems' vents. Further water is lost in cooking and beverage preparation in the hotels, restaurants, bars and housing component.

Low volume shower heads and toilets are already incorporated into water demand projections for Copley Place. To date no other conservation efforts have been studied.

S-1-25

The poor quality of the reproductions in the draft report are due primarily to the printing process which was used. The printing provided too much contrast which resulted in black and white colors with no grays. As a result many figures are illegible.

All the Draft EIR Supplement/Draft EIS visual quality figures have been taken from the report titled: Copley Place Visual Quality Consideration. The quality of the figures in this supplement to the draft report are much clearer. In addition, the visual quality report contains additional figures not included in the Draft EIR Supplement/Draft EIS.

The visual quality figures (along with the rest of the report) are also reprinted in the Final EIR/EIS. A better reproduction process has been used to insure improved legibility for the figures.

Also see response to C-6-1.

The Department of Environmental Quality Engineering (DEQE) staff devoted a considerable amount of time to meeting with Urban Investment and Development Company, the Boston Redevelopment Authority and the environmental consultants retained to analyze air quality impacts during the early stages of project planning. During a series of meetings in June and July, 1979, DEQE provided guidance with respect to the level and detail of the analysis it expected for the Copley Place air quality studies. Methodology, input data and assumptions to be used in the analysis were outlined for agreement in advance.

The support of the Massachusetts Department of Commerce and Development is appreciated by the project proponent.

The Boston Redevelopment Authority acknowledges receipt of the brief comment letter by the Metropolitan Area Planning Council (MAPC). No comments, however, have been received from any MAPC representative other than the Executive Director.

Many mitigating measures, as suggested by Mr. Truslow, are described in response to specific comments offered by other commenters.

S-5-1

The revised figure 1 included the final wind report now includes the areas mentioned.

S-5-2

These corrections have been included in the final text for Pedestrian Wind Environment at Copley Place, Boston, Massachusetts, August 1980.

S-5-3

Section 7.4 of the Final EIR/EIS includes pedestrian patterns. This provides the suggested data within the transportation context.

S-5-4

The Hancock and Prudential Towers have a primary effect when they are upstream of the project. With the exception of very localized effects buildings such as these do not have an effect when they are downstream of the project. However, the Hancock building has been addressed specifically in a separate section of the Final EIR/EIS, and every effort was made, within the confines of the physical limitations of the model, to include points which would allow for quantification of the degree to which Copley Place would have an effect at either location.

S-5-5

The pedestrian bridge linking Copley Place to the Prudential Center will be an enclosed bridge. It is the termination of the bridge that has been discussed and more carefully elaborated upon in the final wind report cited in response S-5-2.

S-5-6

Every effort has been made to describe the potential for possible mitigation schemes that would improve the wind environment with regard to problems not specific to the Copley Place project. Careful study of these problems could lead to suggestions for mitigation. However, since these problems exist under present conditions, the treatment of this issue does not seem specifically appropriate to the Copley Place Report.

Tall, thick coniferous trees generally make the most effective wind breaks.

Also see response F-5.

S-5-7

General massing of the buildings is probably more important than smaller scale mitigation scheme effects on the wind environment. During the early phases of the Copley Place Project, many major design modifications were made to reduce the impact of the building massing. The evaluation of design changes for Copley Place is outlined in Section 5.

As noted in the response to comment F-5 the developer, the wind consultants and BRA will continue to review supplementary modeling data which investigates the effects of variations in massing. The review of this data will be undertaken before BRA gives its final design approvals.

S-5-8

The final pedestrian level wind report provides a more complete treatment of all areas of predicted windiness. That data is summarized in Section 7.7 of this report. The summary includes an estimate of the frequency of 13.6 mps winds.

S-5-9

The word azimuth is used to describe 1 of 16 compass directions, for example, North, North-northeast, or West-south west, from which the wind is originating. Each azimuth includes 22-1/2 degrees of compass.

S-5-10

The velocity in the wind tunnel is not related to full scale velocity as such. The actual velocities used in the experiment are determined, not by the length scale, but by the Reynolds number. Reynolds number is defined as a dimensionless parameter and is computed by multiplying the velocity times some characteristic length such as a building width or a building height and dividing by the dynamic viscosity of the fluid. (The dynamic viscosity is a property of the fluid; it is a measure of how easily it flows).

S-5-11

The final report on pedestrian level winds includes seasonal variations. Appendix C of the final report includes numbers for comparison.

S-5-12

The final wind report cited in response S-5-2 is intended to provide more clear representation of the experimental theory. A page of definitions has been included for the symbols used in that report.

S-5-13

A page of definitions has been included for clarification of these points.

S-5-14

All meters-per-second figures are accompanied by equivalent miles-per-hour figures and the inconsistencies have been corrected in the final wind report.

S-5-15

Please see response to comment S-5-14.

S-5-16

Yes, this summary provides an accurate description of the study process.

S-5-17

Please see the response to comment S-5-10. In addition Reynolds Number surface roughnesses and small scale turbulence have been modelled to accurately represent real conditions.

S-5-18

Wind tunnel modeling is very sensitive and the kinds of phenomena described have been observed in the experiments in the wind tunnel.

S-5-19

The power law profile figure shown has been corrected to upstream velocity profile for the tests.

S-5-20

Page A-32 has been corrected. A clearer explanation is given in the final wind report.

S-5-21

There are many areas in which the state of the art of wind engineering has improved over the last decade. It is a relatively new area and future sponsorship of additional research should lead to further improvements.

S-5-22

The Final EIR/EIS addresses specifically the issue of Copley Place project impact on the Hancock Tower. See Section 7.7.

S-5-23

Appendix D of the final wind report includes more detailed discussion of the type and nature of wind environment in the area of each sensor studied.

S-5-24

Prediction of short duration gusts is a degree to which accuracy is implied in numbers for which very little reliability can be expected. The choice of a 40 second gust duration was made to include the effects of gustiness without implying that very short duration gusts can be predicted.

S-5-25

The effects of 3 second gusts have been implicitly accounted for in the derivation of the comfort criteria and in the selection of a suggested threshold of acceptability.

S-5-26

The report has been edited to remove inconsistencies and the value 13.6 meters per second (30 MPH) was chosen as a suggested threshold of acceptability with a recurrence of one percent since this value represents a short duration gust which might occur during a period where the average wind velocity was much lower, for example, 9 to 10 meters per second. The equivalent Beaufort scale wind has been suggested to be a strong breeze/moderate gale.

S-5-27

It is agreed that each point should be evaluated both in terms of its windiness relative to the suggested acceptability threshold, and also the degree to which the area is impacted by the project.

S-5-28

The velocity  $V_{\text{comf}} = 3$  mps was introduced as an example of a sample calculation and has no significance beyond that.

S-5-29

There is little in the state of the art that explicitly addresses the elderly or the handicapped with regard to wind impact. As with other public safety criteria, however, the comfort criteria used are based on the perceptions of a susceptible population. This population includes these types of people for whom elevated wind speeds can be troublesome.

The evaluation of the Back Bay train station environment is included in Appendix D Section D.12.

S-5-30

The final wind report, cited in response S-5-2, includes the predicted one hour average wind speeds. Both "before and after" numbers are included in the final report. Receptor #2 is in Copley Plaza.

S-5-31

No response required.

S-5-32

There is wide disparity concerning the best method for presenting predicted wind speeds. The examples given here are quite similar to the methodology employed by Isyumov and Davenport in Reference 6 of the final wind report.

S-5-33

The impact of wind, whether described as velocity or pressure, is accounted for in the concept of the comfort criteria developed in the various sources.

S-5-34

The errors intrinsic to experimental science, as they apply to this study, do, indeed, tend to cancel because the same model and methodology was used for the "existing" and "proposed" configuration studies.

S-5-35

Adequate treatment of the errors intrinsic to wind tunnel engineering have been described in a paper by Surrey and Davenport entitled "Modelling the Wind climate: An Overview".

S-5-36

Errors occur ad hoc in inconsistent ways. Wherever differences appear in data that cannot be substantiated by physical evidence, the cause of experimental error is cited.

S-5-37

The use of the term 100 percent as a likely error in predicting probabilities of .001 derives from the fact that the probability could vary by as much as 100%. In the case of predicting probabilities in the range of .01 the possible error is still  $\pm .001$  or, in this case, 10%.

S-5-38

The Reynolds Number has been defined in response S-5-10. The Reynolds Number is dimensionless, but depends on some characteristic length, for example, the building height or building width and the inclusion of some characteristic length from the model would result in a dimensionless Reynolds number. For example a building that is 1/2 foot wide would result in a Reynolds number  $1.58 \times 10^5$  per foot, which then becomes  $.79 \times 10^5$ .

S-5-39

The effects of buildings upstream of the project vary according to how far away the buildings are. The Hancock and Prudential Center Towers were both included in the physical model used for the experiments and, therefore, the precise effect of these towers is simulated in these tests.

S-5-40

Appendix D of the final wind report, Section D.6, contains the revised description of sensor 6.

S-5-41

Increases in winds from a given azimuth can result in artificially exaggerated increases at a location studied, depending upon the frequency of winds blowing from that direction. The details of the wind environment at Trinity Church are fully described in Appendix D, Section D.1 of the final wind report.

S-5-42

This refers to the need for physical interpretation to differentiate between real changes in wind environment and apparent changes which result from possible experimental errors.

S-5-43

The correction has been made to the final text.

S-5-44

The correction to the figure has been made.

S-5-45

The roughness length  $z_0$  is used only to describe the theoretical predictions of percent turbulence as a function of height above the ground. The values for  $z_0$  not are customarily arrived at by empirically fitting experimental data in deriving roughness length.

S-5-46

The legend for the wind roses is provided as part of Figure A.14. The solid curves are velocity in meters per second measured radially for a specified probability of being exceeded. The dotted curve represents the probability that the wind will originate from any azimuth (22-1/2 degree segments of the compass). The inner circle and outer circle represent 10 and 20 percent respectively.

S-5-47

"Discretization" means breaking up the wind direction into 16 discreet azimuth windows (1 azimuth window represent 22.5 degrees). The shortcomings of discretization are noted in the text.

S-5-48

Please see the response to comment S-5-42.

S-5-49

The statistical parameters are defined only in terms of their context. The equations for the Rayleigh and Weibull distributions represent modifications of more commonly used statistical mathematical models.

S-5-50

The interpretation or perception of windiness is, in part, a function of personal attitude on the part of users and subsequently all aspects affecting human perception and enthusiasm effect the degree to which the windiness will be considered unacceptable or acceptable.

S-5-51

This sentence has been corrected in the final wind report text.

S-5-52

Appendices C and D of the final report include discussion of seasonal variations in predicted wind speeds. For certain sensor locations existing on the proposed site the existing conditions were not examined because the nature of winds in the existing conditions was considered to be adequately represented by other sensors studied.

S-5-53

Description of wind loads is provided in Appendix D of the final report. The use of graphics to describe wind flows is very often more confusing than not, since graphics are two dimensional and wind impacts are not. While wind direction in a plane can be demonstrated it is difficult to show three dimensional winds and add speeds and frequencies of occurrence to that. Also note that the concept of effective gust (i.e. intermittent winds) is particularly hard to depict graphically.

S-5-54

The downwash effect on a building is more a function of the building height and width (width divided by height is called the "aspect ratio"). The details of the building surface will have only very small localized effects on the downwash.

Also see response F-5.

S-5-55

Little is known about fluidic techniques as a possible application in reducing due to atmospheric winds. Indeed this is an area where future research may provide new insights into solving wind problems in the urban environment.

S-5-56

Trees are commonly used to reduce winds by incremental amounts. The degree to which trees impede the wind speeds and filter airborne particles is a function of wind speed, tree density and season.

C-1-1

This issue was also raised in comment S-1-13, and has been addressed by the reassessment of the road network and reassignment of Copley Place traffic to see what alternative routing may be feasible.

This comment calls attention to a sentence in the Draft EIR Supplement/Draft EIS, which is, indeed, subject to misinterpretation. The sentence states that the Orange Line might attract commuters from the north sector of the Metropolitan area, and would thereby result in a reduction in traffic volumes on Berkeley Street and other access routes to Storrow Drive. This is not likely to happen. The reference should have been to a reduction in Copley Place demand. The Draft EIR Supplement/Draft EIS intended to point out that only through a reduction in existing demand on Berkeley Street could Copley Place traffic be accommodated. Thus, the alternative was a shift of some portion of the total demand to alternative routes, or to the Orange Transit Line.

With regard to the comment that the demand for access to Storrow Drive will not slacken, and that other routes will have to be found, the transportation consultants are in partial agreement. It is unlikely in the foreseeable future that a reduction in traffic on Back Bay streets will occur. However, it does not necessarily follow that additional routes will have to be found to satisfy an ever-increasing automobile demand. The greatest obstacle to travel between the Back Bay and the north is Leverett Circle, which causes the single largest back-up in the area, often extending down Storrow Drive into the Back Bay street network. The creation of additional capacity between Copley Place and Storrow Drive will not solve this problem, and will not necessarily induce higher traffic volumes. An increase in the capacity of Leverett Circle (which would involve major construction), could easily be matched by additional volumes on the Storrow Drive approach road system without any significant new construction.

The neighborhood can be protected from significant increases in traffic volumes by maintaining the present traffic pattern without any additional traffic capacity added to the system through the elimination of curb parking, new construction, or similar measures. The one-way pattern already allows pedestrians a reasonably good environment for crossing streets. Thus, a program aimed at reducing vehicular green time to the benefit of pedestrians does not seem warranted or likely.

Much of the traffic problem in Back Bay manifests itself in the poor quality of flow. There are a number of reasons for this. Double and triple parking, truck activities, uncontrolled pedestrian street crossings and parking and unparking maneuvers all take their toll on the quality of traffic flow. Looking at the traffic volumes, however, on a street by street basis, they are surprisingly low in relation to the apparent congestion that exists in Back Bay. Volumes are sometimes heavy, but the street system has a considerable amount of capacity that is either already available, or that could be created with relatively minor changes. (This is not a requirement of the Copley Place project, which is committed to no change in the traffic capacity of the approach road system.)

Based on the 12 hour traffic counts made by the BRA in 1975 and 1976, many of the streets in Back Bay show only a slight reduction in volumes between peak and off-peak hours. What this suggests is that most of the traffic in Back Bay is generated by the land use activities that already exist in this area. As noted in the traffic analysis, much of Back Bay is protected from greater traffic volumes by the capacity restrictions on major access roads such as Berkeley Street. While such congestion may be undesirable for a number of reasons, it does limit traffic volumes on local streets where additional capacity is available.

The key point is that the Copley Place project has neither requested, nor required any increases in traffic capacity. It is unlikely that there are any mitigating measures that can be

taken at this time by anyone to reduce the traffic volumes in Back Bay. To some extent, this has already occurred through lack of action to increase traffic capacity to match traffic demand. There are, however, projects being considered by the MDC and the City that would increase capacity in the Fenway area, but these are unrelated to the Copley Place project.

The sketch attached to response S-1-13 shows the reallocation of 200 Copley Place trips previously assigned to Berkeley Street. A reassessment based on existing travel time shows that there are alternate routes to reach north and northeast suburbs from Copley Place. The 200 trips on Berkeley Street represent 65 percent of north/northeast (N/NE) trips from Copley Place. This is the only sector from which trips affect Berkeley Street.

Alternative routings via Charles Street are feasible from a time standpoint. Equally feasible are routings via Charlesgate and Massachusetts Avenue and Storrow Drive to reach the N/NE locations. This is confirmed not only by travel time data that was gathered in field studies, but also by talking to people who work in the Copley Square area. In particular, the Massachusetts Avenue/Memorial Drive routing has the potential for attracting even more traffic than has been assigned to it at present.

What is significant is that these routings do not penetrate Back Bay residential streets to a large degree. Routings down Stuart and Boylston Streets totally avoid the purely residential area, although they do increase traffic volumes on Charles Street. However, this street is already a major arterial street with high traffic volumes and is essentially commercial in nature. The routings to the Charlesgate and Massachusetts Avenue/Memorial Drive do involve travel down Hereford Street and Beacon Street, both of which are predominantly non-commercial. However, these streets are already used by large volumes of through traffic (the ADT on Hereford is 4,000 and on Beacon Street is 12,000) so the increments are not expected to have an adverse effect on them.

In effect, the lack of better access onto Storrow Drive protects a large portion of the Back Bay area from the impacts of through traffic.

C-1-2

A considerable portion of casual visitors and shoppers expected at Copley Place will consist of employees who work in the area and visit Copley Place during the day, hotel visitors who are expected to use Copley Place facilities both during the day and in the evening, and people who already travel to Back Bay for shopping, social or recreational trips.

The addition of Copley Place uses to the existing base of Back Bay retail and other establishments is analogous to an addition at a large regional shopping center. The trip generation and parking demand of the additional space does not produce a linear demand for traffic and parking. The ITE Trip Generation Information Report, as well as other studies, show that as a shopping center expands, its trip generation rate (trips per sq. ft.) and parking rate decline. Sales are achieved through longer stays, and thus more sales per capita or per vehicle.

It is difficult to imagine wealthy patrons making a shopping trip to Copley Place by street car or bus, but it is also difficult to imagine such individuals cruising through the Back Bay or South End residential neighborhoods searching for a curb parking space and then walking several blocks to their destination.

The Copley Place visitor/shopper parking supply of 625 spaces is considered adequate to serve the projected square footage. The ratio of 1.2 spaces per 1,000 square feet of gross floor area for retail is comparable to other downtown developments and is thought to be adequate for the Copley Place project. The large daytime population is expected to produce an important portion of the shopping trips at Copley Place. It is believed that the on-site parking supply, as well as the

spillover effect from the existing base of Back Bay retail spaces, will provide the Copley Place stores with an adequate supply of parking. This is admittedly a projection based on past experience, but using other projects as a guide, is a reasonable assumption.

### C-1-3

In the interest of overall consistency, it is of course quite true that the parking shortfall was 494 spaces, as estimated by the agreed-upon model and assuming that no underutilized parking facilities will be available off-site in the surrounding area.

It is, however, also valid to cross-check such individual results against actual available data, particularly when in practice a working equilibrium of supply and demand, not necessarily of a negative nature, will come about in the future. By applying the employee-to-space ratio of the 1972 Wilbur Smith parking study as it relates to the Back Bay, the shortfall would only be 290. This should be somewhat comforting, particularly considering that the future transit access to the project area will be much better than in 1972.

At the same time, the model still has to be viewed as a valid, consistent prediction mechanism for a number of variables. There is no reason, nonetheless, that the interpretation of the model outputs cannot be tempered by other information. In the model, estimates of trips made for various purposes were done separately, without explicit accounting for multi-purpose trips both on- and off-site. Actual survey data may embody such overlap as well as, within a specific context, indicate a different modal split.

A parking shortfall of any magnitude could have a number of consequences. These are:

1. A higher level of illegal parking, including on neighborhood streets, could occur. The committed Resident Parking Sticker Program will offset this.

2. Overall in the area parking will be harder to find.
3. Some trips may not be made, possibly lessening the economic viability of the development.
4. The transit modal split will in actuality be higher, or car occupancy or multi-purpose trips will increase.

The transportation consultants are inclined to look towards the last point, given the new transit improvements for the area and the trends in auto fuel costs and availability.

Overall, the inclusion of a "second opinion" regarding parking shortfall is constructive and informative.

#### C-1-4

Conditions and projects referred to in this comment are either existing or tentative and do not represent significant impacts on the study area. The traffic and parking analysis for the Copley Place project did assume that there would be no increase in off-street parking off-site. The immediate area may even experience a decline in off-street spaces as redevelopment parcels are reclaimed from parking to buildings.

A number of the projects mentioned in this comment have been implicitly included in the increases in traffic exclusive of Copley Place. Future background traffic without the Copley Place project was forecast to increase 7% from 1979 to 1983 and by 23% from 1983 to 1995.

#### C-1-5

See response S-1-16.

Wind tunnel modeling has been undertaken. The results of the modeling are described in Pedestrian Wind Environment at Copley Place, Boston, Massachusetts BBN, September 1980. The results of these investigations are summarized and reported in Section 7.7 of this report, as well.

Displacement directly attributable to Copley Place will occur only in the case when (1) a landlord in the impact area raises the rents in his/her building specifically to capture the dollars of a new Copley Place employee able to pay more for rent than the landlord's current tenants, and (2) those tenants leave the unit involuntarily. As ERA pointed out in Sections III and IV of its study, displacement is already a phenomenon in the areas around Copley Place which is defined as the impact area. In forecasting future impacts, then, it is virtually impossible to separate the displacement which might result directly from Copley Place from the displacement that is a function of the wide range of other pressures on the housing market in the impact area. The ERA study does not claim that Copley Place will cause no displacement; it is their conclusion that it will add at most a moderate increment to the level of displacement already occurring.

Stated more specifically, ERA concluded that between 200 and 210 units per year represented the additional demand element attributable to Copley Place (equal to 11-15% of total yearly demand for housing units). Possible displacement from Copley Place would only amount to some fraction of this demand element, since many of the units taken by Copley Place employees would have become available through normal turnover caused by the voluntary departure of the previous tenant. Even if every one of these demanded units caused displacement, however, the impact would be small: about 0.7% of the entire impact area's housing stock, and 11-15% of each year's total additional housing demand.\*

Because there are many pressures operating on the housing market in the impact area, therefore, the displacement which may be attributable to Copley Place amounts to a small portion of any displacement which might be occurring in the area.

\* The current development program will result in a housing demand of 210 units per year over 5 years, which is 12-15% of each year's total housing demand.

This project has received extensive planning review with residents of the surrounding neighborhoods. Over forty citizen review committee meetings have been held since the inception of planning for this project.

The coordination with adjacent development has also been extensive. In addition, regarding coordination with other projects, see Response C-9, III: Point 5, and for response to the Tent City Corporation comments, see C-9 in its entirety.

This comment calls for the development of new housing throughout the downtown, in conjunction with development of Boston's service and tourist economy. As stated in the Draft EIR Supplement/Draft EIS, City housing policy calls for the use of private and government resources to produce additional and substantially improved housing for persons of all income levels. To respond to the need and demand for housing in Boston, and in particular the CBD, the City is encouraging the conversion of non-residential, underutilized buildings to housing and the renovation of vacant housing, where appropriate, to expand the supply.

In addition, please see Section 7.12.2.

No such surveys were made. Nevertheless, the primary point of the ERA study was that Copley Place would supply only one of the many pressures operating to raise rents and property values in the impact area. Even without the addition of Copley Place, the housing market would face increasing rents and property values, due to a variety of economic and demographic forces, many of which are national in scope.

On a national level, these include: persistently high annual inflation rates; federal tax policies which induce renters to become owners; the maturation of the post World War II baby boom; the postponement of marriage, deferred family formation and the trend toward smaller households; and sharply increased energy and transportation costs which force people to live closer to their jobs in the core city.

Locally, housing costs are generally on the increase due to the economic recovery Boston has experienced over the past 20 years; the large increase in service sector jobs in the inner city; the rediscovery of certain inner-city neighborhoods, the special appeal Boston has in attracting and holding young adults in the 21-35 year age group, and systematic program of public improvements throughout the city designed to arrest long-term decline which had afflicted three of the four neighborhoods in the impact area, namely the South End/St. Botolph area, the Fenway, and Bay Village.

The comment concerning speculative realtors "blockbusting" the impact area seems unfounded. Blockbusting is an illegal scare tactic used to frighten homeowners into selling by making them think values are declining rapidly and that they must sell in order to avoid further devaluation of their homes. It is hard to imagine the successful employment of these tactics in the Copley Place impact area.

#### C-4-2

The respondent has confused cause and effect. The point is that rents and property values will already be too high for many of the non-professional employees of Copley Place who do not already reside in the impact area. Copley Place itself has not caused this situation; other pressures, described in Section IVA of the Housing Impact Analysis, and listed in the previous response (C-4-1) are responsible.

It is important, however, not to overlook the existence of a large unskilled and unemployed labor pool presently residing in the impact area. To the extent these people will be provided with significant employment opportunities, Copley Place will engender wider economic and housing choices. Furthermore, the developer is required to provide 17.2% of the permanent jobs to present residents of the impact area, and 30% to minorities.

Given the relatively high unemployment rate in the impact neighborhoods, and the preferential hiring safeguards, the conclusion that Copley Place will lead to a "Johannesburg model" wherein poor people and minorities will be displaced to outlying areas only to be "shipped back" to perform menial labor is unfounded.

#### C-4-3

To quote the HUD regulations, "The purpose of urban development action grants is to assist distressed cities and distressed urban counties which require increased public assistance and private investment to alleviate physical and economic deterioration." (CFR 24 Subsection 50.540). To this end commercial, industrial and residential projects are eligible activities.

UDAG is a competitive program that is designed to respond specifically to the demonstrated financial need of individual projects sponsored by developers. The City's UDAG application

for Copley Place, therefore, is a specific response to the program designed by UDIC. Moreover, the City's ability to compete successfully for the \$19.7 million in UDAG funds is due only to Copley Place's demonstrated need for financing in this amount and the project's highly competitive position in term of private dollars leveraged and jobs created.

As UDAG is a discretionary program, there is no minimum or maximum dollar amount per year to which the City of Boston is entitled. It is important to remember that Copley Place does not preclude the City from successfully seeking funds for future projects, even in amounts equal to the Copley Place UDAG proposal. The only constraint is that each project is evaluated separately and must stand upon its own merits in a nation-wide competition. The City does anticipate that future housing proposals would be received favorably by HUD and that these projects could be competitive with leverage ratios of as low as 2.5:1 instead of Copley Place's 15:1 private dollars to public dollars leverage ratio.

In conclusion, Copley Place does not represent a trade off of UDAG dollars from housing to commercial projects. To the degree that housing proposals developed by local groups are competitive, they too will receive serious consideration for funding by HUD.

#### C-4-4

The BRA and the Tent City Task Force are in accord on the guidelines for development of Parcels 11A and 11B. The jointly-promulgated plan calls for 25% low income, 50% moderate income homeownership, and 25% market level residency. The BRA and the Tent City Task Force are in agreement on this matter and the Task Force has publically withdrawn its opposition to the Copley Place UDAG application.

Most recent Copley Place plans call for the use of gas for cooking and electricity for space heating and air conditioning. Electrical demand will be met by Boston Edison Company, the operator of Pilgrim I and proponent of Pilgrim II. Therefore, some of Copley Place's electricity may come from Pilgrim II. However, Boston Edison has not made its ability to supply the electrical demand of Copley Place contingent upon the construction of Pilgrim II. At this point, no alternative to using commercially supplied electricity for lights and other electrical appliances is feasible, and Boston Edison is the only utility supplying electricity to Boston.

See Section 7.11 of this report.

## C-5-1

The ERA study did not develop a direct estimate of displacement directly attributable to Copley Place because it is virtually impossible to separate the displacement which might result from Copley Place from that resulting from the range of other pressures operating on the impact area. Even so, ERA predicts that displacement due to Copley Place will be slight. See Response C-2-1 for a full explanation.

The "\$20,000 in 6 to 9 months" is an unsubstantiated estimate made by a Fenway resident, not a finding of the Housing Impact Analysis. The most dramatic property value increases pointed to in the ERA study were the sale price increases for Back Bay condominiums, which were found to increase from a \$30,000-\$50,000 range in 1976 to a \$75,000-\$115,000 range in 1979 (Table III-14) -- equivalent to an \$18,300-per-year increase.

The statement claims that the EIS should analyze the "effect of Copley Place on the housing supply ... and the increase in displacement as well as an analysis of property values." The ERA study does assess the effect of Copley Place on the housing supply; indeed, that is the subject of the entire study. The increase in displacement is addressed in the first paragraph of this response, and the effect on property values is addressed in subsection D of Section V (p. 73), where it is concluded that rents will increase some 0.6% to 1.4% more than they will without Copley Place, and sale property values would increase by a similar margin.

## C-5-2

No attempt was made in the study to separate the impact of Copley Place on housing of blacks or any other minority groups. The Housing Impact Analysis found that the probable impact of Copley Place would be to increase demand by another 200 units per year for 5 years.\* Given that there are some 28,000 units of

\* The current development program will result in a housing demand of 210 units per year over 5 years.

housing in the impact area with an annual estimated turnover rate of 15% to 20%, the impact of this increased demand was deemed slight. Therefore no purpose would be served, nor would it be feasible to attempt to measure the impact on minorities, where the overall impact is slight to begin with. An assessment of Copley Place's impact on the area as a whole is explained in detail in the response to C-2-1.

It is also important to note that the only low-income groups vulnerable to displacement are those in non-subsidized units, since persons in the subsidized units cannot be displaced, according to federal law. As is evident from Table IV-3, the portion of total units occupied by non-subsidized low- and moderate-income residents in each neighborhood is well below 50%.

Additionally, there is no evidence that the South End Urban Renewal Project has caused displacement of minorities from the South End. The recent Concensus Survey (1978) estimates that 54% of the neighborhood is currently minority. It also indicates that one-half or more of these minority residents have arrived during the urban renewal years. Clearly there is nothing incompatible between revitalization and minority residence and in-migration in this part of the impact area.

#### C-5-3

As indicated in the response to C-5-2, the ERA studies were geared toward assessing housing impacts to all population groups in the areas surrounding Copley Place. The potential for displacement was not disaggregated by any specific target groups largely because the project was not deemed to have housing impacts specific to any particular group of people in the impact area. On the other hand, the project does include employment goals specific to protecting several groups. Employment provisions include construction and permanent job goals for minorities, as well as minority enterprise participation provisions. In addition, job goals have been established for residents of the impact area.

Furthermore the EIS does not acknowledge that Census Tracts 707 and 708 will be the most affected by Copley Place. This sub-area contains a high percentage of long-term minority residents, many of them homeowners. It is situated along the old Penn Central rail corridor in the South End from Massachusetts Avenue to the Copley Place site, and remains one of the more stable sub-neighborhoods in the South End, precisely because of the presence of so many minority homeowners who cannot be involuntarily displaced.

The EIS and Housing Impact Analysis conclude that other major public improvements within these census tracts will have a major upgrading effect upon the area and will likely increase demand for housing there. The rail corridor and the deteriorated condition of Columbus Avenue, which together encompass ninety percent of this area's perimeter, have generated a strongly negative economic, environmental and aesthetic effect upon the area. These major blighting influences are about to be eliminated, however, by the complete reconstruction and landscaping of Columbus Avenue, and the decking over of the rail corridor with a landscaped linear pedestrian park.

It is these improvements, combined with other forces at work in the neighborhood, not Copley Place, which will exert pressure on the demand for housing in this sub-area.

C-5-4

ERA made the point in its study that, because of increasing rents and property values in the impact area, caused by existing pressures on housing in the area, it is primarily the professionals at Copley Place earning higher salaries who will be able to afford housing in the area. Copley Place workers earning lower salaries who do not already live in the City, whether minorities or not, will look beyond the immediate area to Brighton-Allston, parts of Cambridge, Somerville, and other neighborhoods of Boston for housing that they can afford.

The permanent hiring policy agreed to by the developer includes 50% Boston residents, 30% minorities, and 17.2% residents from surrounding neighborhoods. This provision, along with the large number of subsidized units in the area, prevents the dynamics of a "Johannesburg model" from occurring.

If the hiring policies were not in effect, and the majority of the jobs were in the upper-income category, the increased demand for housing in the area would probably be much greater. This, however, is not the case.

C-5-5

The Copley Place project involves no actions which may directly affect "the well-being and health of people living in the impacted areas." The project will certainly have no measurable direct effect on mortality or morbidity rates. Any major urban project may induce indirect impacts, such as changes in noise levels, air quality or socio-economic conditions, which contribute to changes in health or well-being. Potential for these types of indirect impacts have been addressed individually throughout the Draft EIR Supplement/Draft EIS.

## C-6-1

An audio-visual presentation of the Copley Place development from a pedestrian's eye view could assist many people to more easily understand the project and it may be required as part of the design submissions to the BRA. It is not, however, either a common or a specific requirement of the environmental review process.

## C-6-2

Wind tunnel studies have been performed and form a part of this Final EIR/EIS (see Sections 6.7 and 7.7). The appropriate report sections are written with the layman and the non-expert government executive in mind. There is appropriate discussion of methodology and technical support data in the stand-alone pedestrian wind report to satisfy the experts among the reviewers also.

As part of the wind study, Bolt, Beranek and Newman took many photos of wind configuration during the testing process using a method of smoke visualization. The smoke jets dispersed in the air stream helped to explain the data results; i.e., what was happening to the air masses to cause the wind intensities measured by the hot-wire method. Movies of the smoke visualization tests would add little understanding to the public of wind intensities. The cause and effect relationships at sensitive receptors have been adequately discussed by BB&N in the wind report.

The commentor uses the terms "incredible winds" around Copley Square. As the report describes, existing wind conditions at certain receptors are beyond those considered comfortable for pedestrians before any development at Copley Place. The effect of the Copley Place project is to lessen wind speeds at some of these receptors and increase them at many others. No structural solutions at the Copley Place site could lessen the wind conditions caused by the John Hancock Tower or the Prudential Tower.

The commentor appears to have misinterpreted various aspects of the air quality analysis done for the portion of the project under the deck. The following clarifications may help remove the misconceptions:

- 1) The analysis deals with a breakdown of traffic, not a breakdown of the ventilation system. The analysis considers pollutant emissions associated with stalled traffic idling beneath the deck (an adverse case).
- 2) The CO levels predicted are within the protective guidelines established by the cognizant regulatory agencies. No exceedance of the 1-hour level of 125 ppm suggested by EPA and the Federal Highway Administration is predicted. Likewise, there is no exceedance of the OSHA average 8-hour guideline of 50 ppm. These standards have been established to protect the public from harmful exposures, with an adequate margin of safety. Therefore, no adverse effects are anticipated.
- 3) The maximum predicted short-term NO<sub>2</sub> levels are being proposed for "ambient air", the mass of air to which the general public may be expected to be exposed. The ambient air quality standards, including the proposed short-term NO<sub>2</sub> standard cited, apply to public outdoor areas, and not to confined areas such as the area beneath the Copley Place deck.
- 4) The rail patrons are expected to spend relatively short periods in the portions of the project beneath the deck. Normally, the period of time in these

areas would be a maximum of a few minutes. Patrons of the rail lines would not wait in the loading area for an extended period, but would leave and return for the scheduled departure. It is only in the railway areas that the high, short-term NO<sub>2</sub> levels are predicted (see Table 7.6-5). Therefore, it is not likely that anyone would be exposed to NO<sub>2</sub> levels which exceed the 470-940 micrograms per cubic meter for more than an hour.

- 5) Assuming an average speed of only two miles per hour, vehicular traffic will traverse the decked section from west of the Prudential Center to the east side of the Hancock Tower in about 17 minutes. This means that average hourly exposures for passengers in vehicles passing beneath the deck would probably be well below the hourly concentrations predicted. It is also reasonable to assume that if average speed is less than two miles per hour, vehicles will stop and motors will be turned off for portions of the time. This would cause reductions in the pollutant levels predicted.

In summary, no adverse health effects are expected to occur as a result of the pollutant levels under the deck. Potential exposures are short-term in nature, and within applicable air quality guidelines.

#### C-6-4

The "CRC Alternative" of 1978, which leaves "Parcel C" vacant, can be considered a "moderate build" alternative compared to the present plans. This alternative is shown in the early concept sketches on pages 3-16 to 3-19. The Draft EIR Supplement/Draft EIS states on page 3-12 that this plan was rejected by the developer and the state because "extraordinary

development costs appeared to make the project unfeasible..." It is logical to assume, especially in light of recent increases in the cost of financing, that any moderate build scheme proposed would be infeasible.

C-6-5

The commentor may be correct in his statement that for some people, Copley Place already is a factor in their decision to buy, sell, or hold real estate in the South End, at least within a two-block radius of the site.

The ERA position in the socioeconomic impact section of the report is that Copley Place will not be a predominant influence on real estate decisions in the South End. The background pressure causing escalating property values will exist without Copley Place. The impact of Copley Place will be marginal, albeit adding to the increased pressure.

By far the most prominent issue raised in the public comments on Copley Place: Housing Impact Study was that referred to as "displacement." The main finding of the study is that Copley Place would be only one of a number of pressures operating to raise rents and property values and to cause displacement in the impact area. Other pressures, discussed in Section IV-A and summarized in the last paragraph of Section I (Management Summary), include the projected growth in inner-city employment, increasing transportation costs, the completion of the Southwest Corridor Project and other urban renewal activities in the South End enhancing the physical environment, property tax reassessment, condominium demand, and the willingness of lowand moderate-income property owners to sell their properties. Without Copley Place, these presssures would still be felt in the impact area.

It is virtually impossible to separate the displacement effect due to Copley Place from that due to the other pressures operating on the impact area. As is evident from the responses to the displacement issue (explained in greatest detail in Response C-2-1) a maximum displacement impact figure of 200-210 units per year for five years, amounting to a moderate impact (11-15% of each year's projected housing demand) is expected.\* This estimate assumes that every housing unit taken by a Copley Place employee will result in the displacement of a previous tenant; it is therefore an overestimate (or high-side estimate) since many of the units taken by Copley Place employees will have become available through normal turnover.

The Stockard and Engler report arrives at a displacement figure of 725 units by estimating displacement resulting from direct demand caused by Copley Place and that resulting from

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\* The current development program will result in a housing demand of 210 units per year over 5 years which is 12-15% of each year's total housing demand.

induced demand caused by Copley Place and adding them together. Therefore, they find direct demand to amount to 485 units (the number of professional Copley Place employees likely to live in the impact area) and induced demand to amount to half again as much as direct demand, or 240 units, for a total of 725 units.

While ERA did not quantify displacement resulting directly from Copley Place, -- a phenomenon very difficult to separate from the variety of pressures giving rise to displacement, -- ERA did not claim there would be no displacement resulting from Copley Place. Nevertheless, as shown in Response C-2-1, ERA shows the displacement to be modest -- about 200-210 units per year (11-15% of total demand, or 0.7% of the area's housing stock), or 980-1,050 units over five years. There is basically little difference between the ERA measurement of displacement and Stockard and Engler's; the differences that do exist are described below.

The application of the 17.2% employment from surrounding neighborhoods and 50% City of Boston residents was based on an assumption that the hire-locally effort would be carried out by the developer and public agencies involved, and would not include outsiders who later move in. Furthermore, because of existing rent and sale levels in the impact area, the number of non-professional workers moving into the impact area will be severely limited by economic realities.

Even if the application of this ratio is eliminated, however, the result, that displacement impact is modest, is not threatened. It increases the annual housing demand element attributable to Copley Place to 235 to 250 units (13% to 17% of total additional demand), still a modest impact.

Stockard and Engler then assume every additional unit demanded by Copley Place workers will result in displacement, which is probably a high estimate since many units will be

available to Copley Place workers through normal turnover in the market. However the argument that one high income worker will displace one low income renter does not take into account the normal movement of people or the likelihood that many new upper income workers will be more attracted to existing high rent units that become available thru normal turnover, or net new additions to the stock. Nonetheless the City of Boston has taken and continues to take measures to address this concern through the provision of publicly assisted housing and investigation of funding sources to allow existing residents to compete in a rising market. Nevertheless, even if one accepts Stockard and Engler's assumption that all units taken by Copley Place workers will cause displacement, the displacement effect still turns out to be modest (about 13 to 17% of each year's demand) or about 0.7% of the total housing stock of impact area.

The Stockard & Engler analysis also posits 240 displacements resulting from "induced" demand, that is, additional pressure on the market caused by outsiders seeking housing in the impact area because Copley Place has made the area significantly more desirable as a residential neighborhood. It is ERA's position that the housing market in the impact area has by now reached a level of maturation that does not allow for a significant increment of additional induced demand. The area is already regarded as a desirable neighborhood. The addition of Copley Place will not greatly enhance its residential attractiveness. Additional outsiders moving into the area will come not because of Copley Place, but because of other factors which are identified at length in Section IV-A of the ERA report.

Stockard & Engler offer a Housing Preservation Program aimed at providing housing for potential displacees losing their residences directly because of Copley Place. Such a program, if it were to make units available for each of the 725

displaced households, would cost \$31,000,000 in property acquisition and rehabilitation alone, and this figure ignores inflation. Accounting for inflation of a 4-year acquisition and rehabilitation period (188 units per year), the total 4-year cost would reach almost \$40,000,000.

The objective of the report submitted by USE/LRDC in response to the Draft EIR Supplement/Draft EIS, as stated on Page 5 of the report is to "analyze the magnitude of the potential displacement problem, the costs associated with providing low and moderate income rental housing and thus the need for subsidies to accomplish this, the sources of those subsidies, and the different approaches to capturing them and implementing a housing preservation program."

The bulk of the report submitted as comments, in fact, is a request for programmatic approval and funding from a number of sources for a CDC. As such the proposal outlines a multi-faceted approach to the utilization of appropriate and available funding sources as well as the creation of new ones. Many of the recommendations outlined here have real merit; others are less appropriate given an insufficient level of funding and the presence of equally deserving proposals in other areas and even other deserving proposals from within the impact area. There are legal and practical obstacles associated with some of the recommended actions, but these should still be fully explored; indeed the City has investigated several of these activities already in the past. Some of the recommended actions represent inappropriate activity with which the city, and in all likelihood the federal and state governments would not be eager to participate.

It would be inappropriate to pass judgement on the relative strengths or weaknesses of this proposal in this form. It must be judged against the other proposals under the appropriate funding sources at the appropriate time.

C-8-1

The ERA estimate was based on a different source, namely BRA estimates of housing units by census tracts, as shown in a BRA interoffice memo dated August 15, 1978. In developing these figures, the BRA updated the 1970 census information, by adding units newly constructed and subtracting demolished units. The ERA calculation of the estimate for the Fenway impact area is shown below:

<u>Census Tract</u>	<u>Estimated # Housing Units 6/78</u>	<u>% of Census Tract in Fenway*</u>	<u>Estimated number of Units in Impact Area</u>
104	5,959	100	5,959
105	1,274	100	1,274
106	1,411	30	423

\*Based on BRA estimate of the percent of housing units for a given census tract that lie within the boundaries of a given neighborhood shown in an August 4, 1978 publication.

C-8-2

The estimates were based on:

- 1) a 1976 estimate by the Boston Rent Control Administration that, at that time, 75% of the units in the Fenway/Kenmore district were under rent control. Given the high transiency rate in this neighborhood, it is likely that many of these units have been vacancy decontrolled over the past 3-4 years;
- 2) interviews with the Boston Rent Control administration; and,
- 3) interviews with real estate brokers working in the Fenway.

C-8-3

The 46% as shown in the Draft EIR Supplement/Draft EIS is incorrect. The correct estimate is 39%.

C-8-4

As indicated on Page 10 of the ERA report, the 11 streets chosen as part of the residential sales price trend analysis were selected to "be representative of a neighborhood or a portion of a neighborhood, and also to reflect various stages of rehabilitation." ERA did not use St. Stephens and St. Botolph Streets to generalize about trends in residential sales prices in the Seven Streets area of the Fenway. The Seven Streets area is very different from St. Botolph and for this reason ERA addressed the impact of Copley Place on this area apart from the area in the Fenway that lies east of Massachusetts Avenue (see Page 75 of the ERA report).

C-8-5

The conclusion that Copley Place will exert a "modest" impact on rents and property values is based on the ERA finding that there are a number of reasons independent of Copley Place, listed in Section IV-A and summarized in the response to C-4-1, that rents and values are rising in the impact area. Copley Place would add only modestly to the pressures that already exist.

C-8-6

As pointed out in the response to C-4-1, Copley Place is but one of many forces at work on the housing market, and by no means the dominant force in the Fenway or the impact area.

Nevertheless, as can be seen by the listing below, the City is actively promoting increased housing opportunities for low and moderate income households in the Fenway by reducing the pressure on existing units through an increase in the supply of both rent assisted and market level units.

PROPOSED SUBSIDIZED HOUSING FOR THE FENWAY

<u>Project</u>	<u>Units</u>	<u>Type</u>
Hemenway Apartments	183	Section 8 Elderly/Family
St. Botolph terrace	52	Section 8 Family
66 The Fenway	32	Section 8 Family
Symphony Area Renn. Inc.	20	Section 312 Family
Westland Avenue Assoc.	101	Section 8 Elderly/Family
Wait Street Associates	107	Section 8 elderly/Family
Total:	495	

PROPOSED MARKET HOUSING FOR THE FENWAY

<u>Development</u>	<u>Units</u>	<u>Type</u>
The Greenhouse	306	Market Rental
Perkins School	16	Market Condominiums
Total:	322	
Total Proposed Fenway:	817 Units	

The Fenway alone has the capacity to absorb over 75% of the anticipated new demand for the entire impact area.

Some initiatives undertaken by the City, community groups and individuals to insure existing residents' stake in the Fenway future, include:

- The recently approved Westland Avenue UDAG for 101 units of mixed-income housing.
- Moderate-income based 312 rehab of vacant properties on Symphony Road.
- An exterior code enforcement program for large, multi-unit buildings.
- 53 unit family and elderly rehab of vacant BRA owned buildings on Massachusetts Avenue.
- Over 100 units of family Section 8 being rehabbed on vacant tax title buildings.
- The formation of a co-op comprised of existing tenants for the purchase of their 12 unit apartment building.
- Rehab of commercial block with participation and protection of existing merchants (through long-term leases at below market rents).
- 312 Loan to new owner-occupants of formerly vacant and/or institutional properties.

NOTE: The issues raised in the comments by the Tent City Corporation cover a wide range of topics, under three headings:

- I. The Analysis of Housing Impacts in the Draft EIR/EIS
- II. Exclusion in the Draft EIR/EIS of a Description and Analysis of Potential Displacement of Copley Place Residents
- III. The Coordination of the Planning and Design of Future Development in the Copley Area

The Tent City Corporation's points have been answered in the order in which they were presented in the comment document.

It should be noted that the responses below refer to comments made on the Draft Environmental Impact Report Supplement/Draft Environment Impact Statement and the ERA Housing Impact Study, which evaluates the residential impact of the 1979 development program. Subsequently, the development program was revised slightly. The current program, evaluated in this Final EIR/EIS, will result in a housing demand of 210 units per year over five years, which is 12-15% of each year's total housing demand in the impact area.

C-9: I. Point 1

Professional judgment, as opposed to evidence found in other studies, was the criterion for determining the boundaries of the impact area. The rationale was that the most focused housing impact would occur in the areas 1) where a worker employed in the development could comfortably walk to work, or 2) where someone, induced to live in the area, could comfortably walk to the project for shopping or entertainment. Beyond the 15 minute walking distance, it was felt that housing

demand generated by the project would disperse rapidly as one's criteria to live close to the project would be outweighed by other housing preference criteria such as housing or neighborhood quality. Additionally, the citizen review process has focused its concern regarding impacts upon the immediately abutting neighborhoods, i.e., within a 15-minute walking radius.

#### C-9: I. Point 2

From ERA's experience, the housing impact of a development, such as Copley Place, along mass transit lines was not conclusive enough to merit using the 15-minute mass transit commute in the definition of the primary impact area.

#### C-9: I. Point 3

ERA intentions were to define an area where the impact of Copley Place would be the most focused, that is the area within a 15-minute walk of the site of the proposed project. Beyond the 15-minute walk, the geographical incidence of the impact would become highly dispersed.

The important point to realize is that this dispersal of demand was an unforeseen finding of the study, not an a priori assumption which would invalidate the initial assumptions defining impact area, or the methodology employed to measure it.

Further, because the public transit corridors radiate spoke-like from the inner-city, usually reaching beyond the municipal boundaries of Boston, any direct demand generated by any single development will of necessity be highly diffused, impossible to measure in an isolated area, and statistically minuscule given the total number of housing units in the metropolitan region. Even in a worst case situation where every one of the 6,000 permanent employees were to move into the metropolitan area from outside the SMSA, those 6,000 households would only be a tiny fraction of the households in the metropolitan region, and would, therefore, exert only minimal demand when dispersed throughout the area.

C-9: I. Point 4a

At the time Prudential opened, the surrounding neighborhoods such as Fenway, St. Botolph and the South End were relatively depressed, and therefore offered many comparatively inexpensive housing options. These neighborhoods have matured greatly over the past 15 years, as we have seen, and there are correspondingly fewer shelter opportunities commensurate with the earning power of the typical Copley Place employee.

It is reasonable and proper, therefore, to anticipate a lower demand from Copley Place than Prudential due to existing economic conditions in the area.

C-9: I. Point 4b

The estimate that 40% of Copley Place workers would live within the City of Boston was based on:

- 1) the BRA 1974 estimate that only 31% of Boston's highrise office workers lived within the city proper;
- 2) the estimated occupational breakdown of the Copley Place workforce; and,
- 3) the notion that the closest, large aggregations of housing within the financial means of the majority of the Copley Place workers lie within the city limits.

On page 66 of the ERA study employment goals for permanent employees are taken into consideration. The commitment of the developers to insure that 50% of the workers within the project were hired from within the City of Boston was independent of the estimate that was based on existing downtown Boston workers' residential locational preferences.

Rather than make a case that the City is underestimating potential demand, it is possible to argue that demand may be less than the City projects, if more than half of the permanent jobs were to go to the City residents. Workers who already live within the City will be much less likely to uproot themselves and their families than workers who must commute greater and more costly distances from beyond the municipal boundary. The permanent jobs hiring goal from surrounding neighborhoods has been set at 17.2%. Unemployment rates are high in these neighborhoods, and there exists a large labor pool of residents who could fill the types of permanent jobs Copley Place will be creating. If, in fact, this hiring goal can be exceeded, then the projected direct demand in the area resulting from Copley Place will likely be less, not greater, than the City previously anticipated.

The ERA analysis does not indicate that Copley Place workers will be displaced in the long term.

C-9: I. Point 4c

As stated in the previous response, the ERA analysis does not indicate the prospect of long-term displacement for employees of Copley Place. Therefore, no analysis of this unlikely occurrence was deemed necessary or made.

C-9: I. Point 5

No. As explained under Point 4a, ERA believes that, because housing prices have increased in the impact area since the days of the Prudential Center, a significantly smaller proportion of the Copley Place workforce will be able to afford housing within walking distance than was the case when the Prudential Center was built.

C-9: I. Point 6

Yes, such an occurrence is theoretically possible, but not at all probable. As implied in the response to question 4, 19% is a better estimate of the percentage of Copley Place workers likely to live within walking distance of the proposed project.

Also see Point 5.

C-9: I. Point 7

If someone living in the impact area was living there before firms in the project began hiring, then that person was considered a resident of the area. No differentiation was made for length of residency. Those moving to the area after being employed by a firm located in Copley Place were considered direct demand as shown in the table at the top of Page 67.

C-9: I. Point 8

To add a turnover element into the Copley Place workforce component that takes up residence in the impact area is double-counting. The 200-210 yearly demand estimate includes all those moving into the neighborhood, whether through turnover or not.

It would appear the author does not understand the relationship of turnover to Copley Place. Turnover simply means the exchange of one household for another. The City, through its consultant, tried to measure additional demand for housing attributable to Copley Place. There are nearly 28,000 housing units in the impact area. A very conservative turnover rate of 15% would mean that 4,200 units become available every year. A large portion, if not all, of the annual demand of approximately 200 units/year could be absorbed by this natural turnover.

C-9: I. Point 9

Yes, but this is already accounted for in the 200-210/year demand element.

C-9: I. Point 10

Perhaps, this is true though this would require study. It is just as likely, however, that turnover among young professionals is higher than low to moderate-income tenants in subsidized housing who don't want to give up their subsidized units. ERA pointed out in the study, the rent and sale price levels for housing in the impact area will likely already be too high for low-income employees of Copley Place not already living in the impact neighborhoods. It is primarily professional workers making higher wages who will be able to move into the impact area.

C-9: I. Point 11

This double-counts the impact; see response to Point 8 above.

C-9: I. Point 12

No. This double-counts the impact; see response to Point 8 above.

C-9: I. Point 13 and 14

This was in fact done. On page 70 of the ERA report, a distinction was made between "baseline" demand (demand without Copley Place) and Copley Place direct demand (demand with Copley Place). The point that was illustrated in this table is that Copley Place direct demand is small in proportion to the baseline demand. The percentage in the last column that shows

the impact of Copley Place as the percentage of total demand for housing with Copley Place is not the important issue. What is important is the 200-210 average annual units of Copley Place direct demand.

C-9: I. Point 15

See Response C-9: I. Points 8-12.

C-9: I. Point 16

The explanation for why the housing impacts will be felt over a 5-year period is explained on page 67 of the ERA report. Specifically it states:

"... we believe the impact would be realized over a five year period because:

- People will wait and see if they like the new job before moving. The shortage of vacant units will further encourage them to be sure before moving.
- The development is currently projected to take two to three years before reaching full occupancy, and, in effect, stability.

C-9: I. Point 17

The bulk of the hiring will occur during the time it takes the project to reach full occupancy. As stated above, this will take two to three years.

C-9: I. Point 18

The notion was that some of the people hired by tenants of the Copley Place project who were not (at the time of being hired) residents of the impact area would desire to live within the impact area in order to be close to work. The reduction of direct demand cancels the impact of those already situated in the impact area. The potential impact of those desiring to live within the impact area is the remainder. As indicated in the response to questions 16 and 17, the housing impact of these movers will be spread over a five-year period.

C-9: I. Point 19

There was no attempt to differentiate between the length of wait (before moving) for different classes of workers. ERA did, however, indicate that the wait for all workers will be less than five years.

C-9: I. Point 20

No, this statement is not true for every property or sub-neighborhood within an area as large as the impact area. Within these neighborhoods there is a wide range of property values as there is across the entire metropolitan region.

On balance, however, the values for the area as a whole compare favorably, and in some cases are better than values in the suburbs, taken as a whole.

Within the impact area itself, there is a far greater variation in value from property to property (depending on physical condition and level of restoration) than there is from street to street, or neighborhood to neighborhood.

C-9: I. Point 21

With the exception of rent controlled units, which are typically not on the market, ERA found many similarities in consumer housing preferences, and unit rental prices in the South End/Bay Village areas including St. Botolph area. This is why such a large area was represented in one row of figures.

C-9: I. Point 22

The area mentioned has variance in housing conditions. A good deal of upgrading and rehabilitation is occurring in the five blocks closest to the Copley Place site. As one moves toward Massachusetts Avenue, there is gradually less evidence of rehabilitation, although the area closer to Massachusetts Avenue presents clear possibilities for rehabilitation. This pattern generally holds true for all the census tracts mentioned: CT 703 is more upgraded than CT 706; 707 somewhat more than 708, and 705 more than 709. CT 704 consists primarily of the Castle Square subsidized housing development, which is in fair to good condition. CTs 804, 805, and 806 were outside the impact area, and so were not included for analysis. They present a mixed picture, but overall are less upgraded than the areas closer to the Copley Place site.

C-9: I. Point 23

In general, yes. This comment misinterprets the statement on p. 3, which states that rents and values in the impact area are "comparable to if not greater than" rents and values in the suburbs. CT 709, however, is an area where rents and values are a little below the average for the impact area.

ERA does not claim that all housing in the impact area has been upgraded. Some areas are clearly still open for investment and so could "mature" further. The point is that, overall, the market is more mature than ten to fifteen years ago, when high-risk speculative investments could (and eventually did) result in large profits. Now, new investments in the area can continue to upgrade the area, but these investments will no longer be speculative; they will be lower-risk investments that will produce surer but less dramatic profits. The areas in the impact area which present the greatest opportunity for this type of upgrading investment are near the railroad tracks and closer to Massachusetts Avenue, where a majority of the structures show evidence of deferred maintenance and are generating lower rents. Low- and moderate-income renters in some of these buildings might be vulnerable, if the buildings are acquired by developers seeking to upgrade the buildings and charge higher rents.

Condominium conversion will continue to occur even in an area that is fairly mature, if the rents generated from high-income tenants still cannot cover operating expenses, taxes, and annual debt service costs. Landlords will find strong inducements to sell their buildings as condominiums if they are unable to operate rental property profitably.

None of the areas in the impact area are ripe for "speculation"; nevertheless, as mentioned above, further investment is most likely to occur in areas that haven't been upgraded: mainly the neighborhoods along the railroad tracks and near Massachusetts Avenue. Much of the housing along the Southwest Corridor or beyond Massachusetts Avenue is subsidized or owner-occupied one, two or three family structures. For these reasons, there are built in safeguards against involuntary displacement in the unlikely occurrence that Copley Place should significantly increase demand along this transit corridor.

C-9: I. Point 28a

As explained in Response C-5-3, the impact in census tracts 707 and 708 directly attributable to Copley Place will be moderate compared to the impact of the Southwest Corridor and completion of urban renewal activities in the South End. The covering over of the Penn Central railroad tracks with a landscaped green space will greatly enhance the attractiveness of the properties along the Southwest Corridor, and add much more to the pressures on rents and property values than will Copley Place.

C-9: I. Point 28b

ERA did address the issue of Copley Place's effect on induced demand. Increased induced demand could only occur, and be attributable to Copley Place, if Copley's construction significantly altered the image of the surrounding neighborhoods in such a manner that non-residents perceived the impact area as a more desirable place to live, and then chose to move there. All parties agree that the impact neighborhoods are already very desirable, are in demand, and reflect this demand in their rising rental and property values.

It is impossible to know absolutely, or quantify the amount of induced demand attributable to Copley Place. Because there are already many other pressures inducing people to live in the impact neighborhoods enumerated in Response C-4-2; and because property and rental values are already quite high; ERA concluded there would be no likely increase in induced demand.

C-9: I. Point 28c

The effect on prices of persons who would like a commodity, but cannot afford it, is negligible. Meaningful demand is exerted only by persons who can afford something, as well as desire it.

C-9: I. Point 28d

While it is expected that the impact that reaches beyond the impact area will be greater than that felt in the impact area, this impact will be diffused throughout the metropolitan area and won't exert a measurable impact in any section of the city, as explained in Response C-9: I. Point 3.

C-9: I. Point 29

The scenario is theoretically possible, but not at all likely. The respondent is overstating the impact directly attributable to Copley Place, which is quite modest, as shown in Response C-4-1. The areas very near Copley Place might feel a greater amount of pressure than the impact area as a whole. The Southwest Corridor and the Fenway, may feel these impacts to a lesser degree, but the Copley Place impact will be only one of many pressures exerted on these areas. Lower Roxbury is largely subsidized and therefore will be resistant to, if not immune from, these pressures.

C-9: I. Point 30

It is worth noting that the Copley Place proposal does include the provision of 100 units of mixed-income housing, 25% of which would be low-income subsidized units.

Certainly, a need for housing that is affordable to households of low and moderate incomes exists, and the provision of new affordable units and the preservation of the existing stock that is presently serving such people are two important elements in the City's housing policy. Whether local policies such as the continuation of rent control in its present form or a strengthened variation, or condominium conversion moratoria are the most appropriate means, or even an appropriate means, of ensuring the preservation of decent and affordable housing for low and moderate income groups is the

subject of much debate. Most significantly these are issues that are presently being explored by the Mayor's Commission on Housing.

Overall, though, increasing the supply of housing would tend to relax those pressures that push rents and values up, and perhaps offset the moderate increases that might be attributable to Copley Place. Whether or not such an addition to the housing supply would make housing costs noticeably smaller for low- and moderate-income persons, however, would depend on (1) the quantity of new housing built, (2) whether any of the new or newly rehabilitated units were set aside for these persons through a federal or state program, (3) the response of landlords to the new demand-supply equilibrium, and (4) the degree to which the new housing attracts more outsiders to the area or is taken by people already residing in the impact area (thus opening up their previous units for other area residents).

#### C-9: I. Point 31

The Revised Copley Place Retail Impact Analysis (January, 1980) found that the project would create an extremely limited demand for commercial space in the South End and states on page 40:

"The most likely impact on South End retailing will be the possibility of generating some convenience goods facilities along Dartmouth Street or near Columbus Avenue and Dartmouth Street. These facilities will probably relate more to the needs of South End resident employee pedestrians and will probably be of such small magnitude that it will be difficult to identify the development as the effect of Copley Place. The probable impacts of Copley Place on South End retailing are not a magnitude which could create an identifiable change on retail rents or retail operations in the South End".

Even if this was not the case, new commercial uses resulting from Copley Place could move into the vacant or underutilized buildings on the land already zoned for commercial uses.

Because there is already a significant amount of either vacant or underutilized commercial property in the impact area (particularly in the South End and Fenway), no conversion of residential to commercial use is expected to occur. Tight zoning regulations in residential areas further protect against conversions from residential to commercial.

C-9: I. Point 32

The total impact of Copley Place outside the impact area will be greater than that within the impact area, but the impact outside the area will be diffused throughout the metropolitan area. It is unlikely that any single neighborhood would receive a large impact, as explained in Response C-9: I Point 3.

C-9: I. Point 33

All MBTA routes could potentially feel this impact. The new Orange Line, once it is relocated, could certainly feel this impact, as could, to a lesser extent, the residential areas along the Red Line, the Green Line, the Blue Line, and all the connecting bus lines within the City and throughout the metropolitan region.

C-9: I. Point 34

Yes. See Response C-9: I Point 33.

C-9: I. Point 35

That was a generalized statement for the defined impact area, to which there are important exceptions, as explained in Response C-9: I Point 20. The area mentioned now has housing where rents and values are below the suburban levels. This area may undergo a significant degree of upgrading in the next

ten years in anticipation of, and in response to the Southwest Corridor development.

The point of the study was that, compared to the pressures already operating, Copley Place will exert a moderate degree of pressure on these and other vulnerable neighborhoods in the impact area. Outside the impact area the effects will be diffused.

C-9: I. Point 36

See Response to C-9: I. Point 33.

C-9: I. Point 37

The report stated that Boston's unique geography allows people to live in Cambridge or Brookline and thereby be closer to Copley Place than if they lived on the waterfront. Cambridge may, therefore, receive some of the housing impact from Copley Place, and probably somewhat more so than suburbs farther away, because of good subway and bus connections.

With a 50% residency hiring requirement in force, a maximum of 3,000 employees would be seeking housing beyond the city limits in the worst case situation where all 3,000 were moving into the SMSA from outside of it. Since almost all of these employees will already be living somewhere within the SMSA the overall effect will be negligible, and on any one particular community, statistically minuscule. Furthermore, it would be impossible to attribute the distribution of any increased demand to a specific locality.

C-9: I. Point 38

There was no attempt to differentiate the impact within the City of Cambridge. Most likely those areas near transportation connections and with lower housing costs would feel the most impact. However, the total impact would not be

very great, as Copley Place workers would spread around the metropolitan area in their choice of residential location. Further, much of the Cambridge housing stock that is within easy commute by public transportation is already priced at a premium.

#### C-9: II. Points 1, 2 and 3

The table representing decreases in the percentage of unsubsidized housing units occupied by lower to middle income households and retired persons is not a projection of displacement. Displacement is the involuntary movement of households from these family units. Many other forces are at work in the turnover of housing units, leading to higher income occupancy, including voluntary sale or moves, and natural life cycle changes. The City's research in the impact area shows these factors to have a very substantial effect.

In any case, the projection of decreases in low and moderate income housing units is a worst case estimate of what would happen if almost all unsubsidized housing units in the area that are presently occupied by low to middle income households and retired people were to be converted to serve a higher income group or otherwise removed from the realm of affordability for its current occupants and they were forced to move. This is unrealistic. This assumes no public intervention to insure that assisted replacement housing is provided either through demand or supply side subsidies; it also assumes that low- and moderate-income homeowners will be forced to move due to increased cost burdens of owning homes in the area. It also assumes that no appropriate Federal interventions are initiated to address the dilemma of rental housing nationally.

In short it represents a view which ignores the positive steps already being taken to insure that such wholesale displacement does not occur.

#### C-9: II. Point 4

The City is not planning to compile a position paper on this topic. There are, however, several measures to mitigate potential impacts associated with Copley Place. The most obvious mitigating measure is the inclusion of a housing element in the project design. A second mitigating measure is the City's development of housing at other sites within the City. A third measure is the particularly aggressive affirmative hiring action program being applied to the Copley Place development. All of these measures, and more, are described in this report (see Section 7.12.2).

#### C-9: II. Point 5

The Housing Assistance Plan (HAP) is readily available to the public at either the BRA library, or at the HUD area office. This year's HAP does, in fact, include census tract 708 as appropriate for rehabilitation of housing for Section 8. A project approved under the fiscal year 1980 N.O.F.A. (notice of funds availability) is located in that tract.

#### C-9: II. Point 6

As explained in Response C-5-3, the ERA's Housing Impact Analysis does not identify census tracts 707 and 708 as major areas of impact from Copley Place. The impact from Copley Place is expected to be slight compared to the impact of other improvements planned for this area.

These census tracts also have significant numbers of assisted housing already, namely: BHA Elderly, Tenants Development Corporation scattered site family housing, Methunion Manor family housing, and Concord Housing family and elderly, as well as other smaller developments. the area as a whole enjoys the highest percentage of subsidized housing in the city, at 38% of the existing stock.

Census Tract 708 is included in the Year 6 HAP. The Year 7 HAP is to be prepared beginning in March 1981. The appropriateness of including Tract 707 will be reconsidered at that time.

C-9: II. Point 7

As explained in the previous response (C-9, II-6), the South End already has the highest percentage of subsidy in the City at 38%. The City, therefore, maintains that an appropriate level of subsidy already exists, and that the limited numbers of future Section 8 units could be better utilized in other neighborhoods, where the need is greater. This notwithstanding, one of the City's top priority projects for FY 1980 is a Section 8 mixed income co-op located in the impact area. One of its other top priorities is a mixed income development in the Fenway section of the impact area.

C-9: II. Point 8, 9 10

Displacement is not usually defined according to the socioeconomic characteristics of the person being displaced, but rather according to the circumstances governing that displacement. Analysis of the circumstances, pressures and forces affecting housing dynamics and neighborhood changes are treated in depth in the Housing Impact Analysis. A summary of this analysis and the projections of anticipated demand attributable to Copley Place can be found in Response C-2-1 and C-4-1.

Also it must be remembered that Copley Place is only expected to add an additional demand of 200 units per year, many, if not all of which, may be absorbed by natural turnover, as well as by the additional assisted and market units opening at the time.

C-9: II. Points 11 and 12

It is not true that revitalization in the South End has been characterized by increasing segregation as middle- and upper-income white households replace lower- and moderate-income minority households. Indeed, after 13 years of urban renewal, the minority population has remained slightly greater than 50%.

Close analysis suggests that much of what is perceived to be displacement might be something else altogether. Implicit in nearly all discussions of displacement is the notion of one class or racial group replacing another less advantaged one.

There is mounting evidence in the South End (and similar evidence for the Fenway) that rather than one homogenous replacement population competing with existing residents for the available housing units, a number of different classes and racial groups may be entering the neighborhood's housing market simultaneously, and competing with one another.

The recent Consensus Survey (1978) has revealed some startling facts about South End residents regardless of race or economic standing. During a five-year period, from 1973-1978, 43% of the adults surveyed, moved into the neighborhood. The breakdown by racial group is as follows:

Percentage of Residents Living in Neighborhood  
Five Years or Less by Racial Group

Blacks:	33%		
Hispanics:	36%	Total South End:	43%
Whites:	52%		

If the period from 1969-1978 is examined, the finding is that more than half the current residents are newcomers, and that the percentages are spread more or less evenly among the three racial groups:

Percentage of Residents Living in Neighborhood  
Nine Years or Less by Racial Group

Blacks:	47%		
Hispanics:	57%	Total South End:	57%
Whites:	65%		

This means that one-half the existing minority residents are new arrivals in the neighborhood. Since minorities make up 54% of the South End, fully one-quarter or more of the total population are newly-arrived minorities and approximately 30% of total population are newly-arrived whites. Under these circumstances it becomes virtually impossible to know who is being displaced by whom, and when.

C-9: II. Point 13

The ERA analysis did not identify census tracts 707 and 708 as major impact areas from Copley Place as explained in Response C-5-3.

Furthermore, large percentages of minorities remain in these census tracts because historically there has been a high percentage of minority homeownership which has been impervious to involuntary displacement. These homeowners will continue to be able to exercise free choice in the market place. There is no evidence that any pattern of segregation is occurring in these census tracts or the South End as a whole.

C-9: II. Point 14

As explained in C-9: II Points 11 and 12, urban renewal has not caused segregation and in Point 13 there is no evidence of a trend toward segregation, nor is there any evidence that Copley Place will cause such a trend.

Minority group members will not be significantly displaced by Copley Place. As indicated above, there is little evidence

to indicate that what has been happening in the South End represents a replacement of one racial or economic group by another. Rather there has been continued movement in and out of the neighborhood by people of all races and income groups. The existence in the area of substantial amounts of subsidized housing - and the prospect of significantly more - guarantees that this area will remain racially and economically mixed.

C-9: II. Point 15 and 16

See Response C-9: I Point 31.

C-9: II. Point 17

See Response C-9: I Point 31.

C-9: III. Point 1

Simultaneous development of Copley Place, Tent City, and Southwest Corridor would minimize long-term neighborhood disturbances related to construction. Although the levels of some impacts, such as noise, construction traffic and air quality, probably would increase with simultaneous development, the impact would last over a shorter time period. It should be noted that much of the Southwest Corridor rail improvement construction will be taking place at the same time as the construction of Copley Place (see Figure 4.2-2) and that the EIR/EIS does recommend the concurrent construction of the Orange Line improvements (particularly the reconstruction of the Dartmouth Street Bridge) and Copley Place Phase II circulation changes to reduce the cumulative duration of impediments to flow on Dartmouth Street and minimize potential for congestion in the area (see p.7-71).

C-9: III. Point 2

Protective measures for buildings surrounding the Copley Place site are being considered, as discussed in Section 7.9 of this report. Also see Response S-1-5.

C-9: III. Point 3

See Response S-1-5.

C-9: III. Point 4

See Response to Comment C-12.

C-9: III. Point 5

Coordinated planning of Copley Place, the Southwest Corridor Project and Tent City has taken place and will continue to occur. The Boston Redevelopment Authority is concerned about urban design considerations for all projects in the City, and has actively participated in the formulation of the CRC guidelines for Copley Place. The Boston Redevelopment Authority also set forth in the Draft EIR Supplement/Draft EIS issues on the schematic design of Copley Place unresolved to the satisfaction of the Authority. The current issues are identified in this document. In addition, the Boston Redevelopment Authority has specified design controls for South End Urban Renewal Parcels 11A and 11B (Tent City) which include height limitations, densities, and planning and design requirements.

The BRA, MBTA and UIDC have discussed the design relationship of the Southwest Corridor deck with Copley Place, Tent City and Back Bay Station. Discussions have included upgrading the portions of the deck between Yarmouth Street and Dartmouth Street from an acoustical deck to a structural deck with deck cover plans to relate to the developments on either

side. Also pedestrian connections between Back Bay Station and Copley Place have been discussed.

There is no special requirement under the Urban Development Action Grant program to integrate the design of Copley Place, Tent City, or the Southwest Corridor Project. The Boston Redevelopment Authority, as the City's planning agency, currently has, and will continue to have, design review of the three projects to ensure design integration and the proper inter-relationship of their design. This is an on-going process and the coordination effort is integral to the BRA's on-going planning functions as the City's planning agency.

C-10-1

See Response S-1-16.

C-10-2

See Response C-12.

## C-11-1 and C-11-2

No such quote appears in the South End Environmental Assessment (1979). This fact notwithstanding, the essential information seems accurate. This information, however, in no way contradicts the ERA Housing Impact Analysis. the fact that many Copley Place employees will not have earnings high enough to move into the impact area, will not in itself affect the ability of current residents to remain in their homes, particularly if they are homeowners or renters in assisted housing.

As stated in C-9, the housing market is no longer speculative as it was at the time of the Prudential Center construction. It should be noted that the John Hancock tower did not have the same effects on the surrounding area as the construction of the Prudential Center.

There is no contradiction between the goals of urban renewal, which guarantee an economic and racial mix through the construction of 6,200 units of assisted housing, and Copley Place, which will create 6,000 permanent jobs, 30% of which are guaranteed for minorities and 17.2% of which will go to impact area residents, many of whom are presently unemployed.

## C-11-3

The sensitive area referred to will be subject to many pressures, of which Copley Place would be only one. The completion of the Southwest Corridor project, which will provide a landscaped cover of the Penn Central tracks (to which the Orange Line will be relocated), will greatly enhance the attractiveness of the area in question. While Copley Place may have a slight impact in this area, its impact will be outweighed by the impact of the Southwest Corridor work, and the reconstruction of Columbus Avenue.

Although many of the jobs will be at the lower end of the pay scale, they will benefit the South End by providing jobs for which many South End residents are qualified. These jobs will primarily benefit large numbers of the unemployed, under employed and unskilled workers in the impact area. This is demonstrated by the following:

- a) Median family incomes in the South End are low. The estimated family income for 1979 in the South End was \$11,741, well below the \$14,000 salary level mentioned in the comment.
- b) Unemployment is high in the South End and in the Fenway. In both areas, unemployment was about three times the rate for the City as a whole (see Figure 6.12-1); and
- c) More than half the work force in the South End consists of persons with clerical, sales, service, and laborer type skills. Not only are the pay levels cited by ERA consistent with the skills levels of those who need jobs but also the types of jobs to be provided by Copley Place are consistent with the skills levels of those who need jobs.

In short, the project appears to provide employment opportunities, at appropriate salary levels, for those who most need work.

The Tent City Project has not been stymied. For the past eighteen months, the City has been working closely with the Tent City Task Force and the Tent City Corporation to get a mixed income housing development underway.

Much progress has been made. Mutually agreeable goals have been developed. Federal programs and funding sources such as the UDAG have identified as suitable tools to achieve an income mix. For six months this year the two competing development teams have been negotiating to join forces. Both teams have submitted preliminary proposals.

Presently, each team has agreed to continue negotiations through a convenor process which will begin no later than early October 1980.

The BRA has repeatedly, and publically, committed itself to a mixed income development. This commitment is clearly stated in the letter dated April 29, 1980 to the two development teams and attached to the UDAG application by amendment.

## C-12

The Fenway Energy Organization (FEO) has provided comments regarding the energy aspects of the Copley Place project. In response to these concerns the energy impact section of the Final EIR/EIS has been totally rewritten. It is included as Section 7.11. The revised section describes, in considerably more detail, the consideration given to energy issues by the developer.

### C-12-1

The project will be energy efficient compared to the Massachusetts Building Code, which is the only presently existing formal "standard", whether national or local, that applies to the project. In many instances, Copley Place will exceed the applicable code requirements.

### C-12-2

The Boston Edison Company has provided a letter indicating its capability to provide the electricity required by Copley Place (see Appendix I). The assertion that the demand could be met was not made contingent upon future capital expenditures by them.

Also, it should be noted that electrical consumption for space heating is limited (see Table 7.11-1 of this report). The explanation for the limited need for space heating energy is explained on p. 7-189 of this report.

### C-12-3

Life cycle costing will be undertaken by the mechanical engineers for those systems deemed feasible in other respects, but will not be undertaken for those systems which have been

deemed unacceptable for other reasons. Section 7.11.2 of this report reviews the consideration given to several of the alternative energy systems suggested by the Fenway Energy Organization.

C-12-4

The developer has discussed several of the energy issues with the Fenway Energy Organization and is prepared to continue these informal discussions in the future. At this time, however, no "comprehensive conservation productivity plan" for energy exists. The best available data on energy issues is included in Section 7.11 of this report.

C-12-5

The project energy systems cannot be tied in with energy systems for the Tent City site. Copley Place is ready to proceed with its initial construction phases, while Tent City is still in its earliest conceptual stages. To date, the identification and organization of a development team has yet to take place. It is simply not feasible for UIDC to delay its project until a Tent City development entity is prepared to discuss cooperative energy systems. Even if the Tent City developer were ready, it is not clear that a shared system would be technically, economically, and administratively feasible.

C-12-6

The most detailed breakdown of energy consumption currently available, by end use, is outlined in Table 7.11-1 of this report. These data reflect estimates by the mechanical engineers for the project, and should not be construed to be final engineering calculations.

C-12-7

Life cycle costing requires detailed costs data for equipment and energy supply. At present, final equipment has not been selected and energy costs have not been determined. Life cycle costing will be done, at a later date, for the energy systems considered technically and economically feasible by the developer and his mechanical engineers.

C-12-8

The Department of Energy has requested Congress to postpone enactment of the Building Energy Performance Standards (BEPS) requirements. It is presently anticipated that proposed new rules will be published for public comment in February 1981, with final rules promulgated in August 1981. Once these rules are promulgated, HUD will be required to change its minimum property standards. It is unlikely that these energy requirements would apply retroactively to the Copley Place project.

C-12-9

The consideration given to the selection of windows for the project is outlined on p. 7-188 (Section 7.11.2). The consideration given to insulating fluid systems is outlined on p. 7-192 (also Section 7.11.2).

Building envelopes consist of roofs and walls which face the outside environment. It is the insulating quality of the envelope which determines how much heat is lost in the winter and how much unwanted heat enters a building during the summer. The insulating system under development for Copley Place will meet or exceed all energy conservation codes now in effect. Walls will be well insulated, office windows will be small, and double pane glass will be used throughout. Assorted

window coating and blind systems are under study now; these would also enhance conservation. Even the central area atrium will employ double pane glass. Use of the atrium at the core of the four office buildings will reduce, by 38%, the amount of building walls which face the outside environment. It is the superior insulating qualities of the building envelope which will result in a need for little or no space heating during the occupied periods, and which will minimize space heating needs during other periods.

C-12-10

The consideration given to heating and cooling systems is reflected on p. 7-189 of this report. An "integrated system" is not being implemented, since the heating and cooling requirements are not balanced. Air conditioning requirements will be much greater than space heating requirements.

C-12-11

See Response C-12-5.

C-12-12

The choice of energy source is discussed on p. 7-184 in Section 7.11.1. The developer has concluded that active solar systems cannot be reasonably integrated into the project design. This decision is based on design, engineering, and cost considerations.

The atrium design is a passive solar design of sorts. The advantages of the atrium are outlined in the building envelope discussion on p. 7-184. It should be noted, however, that the building needs little passive solar space heating. Energy requirements for air conditioning and other systems are much greater.

C-12-13

A discussion of window considerations for Copley Place is included on p. 7-188. Note that final selection of windows has not been made.

C-12-14

A discussion of the consideration given to heat storage is outlined on p. 7-187. The developer has concluded that on-site heat storage is not feasible. As explained in Response C-12-5, it is also infeasible for the developer to consider the possibility of storage capability at the Tent City site. No other feasible storage options exist.

C-12-15 through C-12-18 and C-12-21 through C-12-23

These data are not currently available or are still subject for further refinement. This information will be available only after the mechanical engineers for the project have proceeded much further in their design and analysis efforts. FEO recommendations in these areas will be considered by the developer as the system designs progress.

C-12-19

The square footage of each of the various project components is outlined in Table 5.1-1 of this report.

C-12-20

Estimates of the electricity consumption rates, by end use, are outlined in Table 7.11-1. In addition, the project will use natural gas for cooking purposes in both the commercial kitchens and in the residential units.

C-13-1

Land uses directly adjacent to the site include commercial activity to the north and east, and residential to the south and west. A portion of the southern edge of the project will contain neighborhood oriented retail uses facing the Southwest Corridor deck. At the southwest corner of the project is located the housing component. This housing component covers roughly half of the western edge of the project facing the St. Botolph Street neighborhood and one-third of the edge along the Southwest Corridor deck. (see Figures 5.1-1 through 5.1-7 of the Draft EIR/EIS).

C-13-2

The magnitude of a development project is only one of many factors which is considered by the Massachusetts Historical Commission in their decision on its compatibility with nearby historic resources. The materials, texture, facade and colors used in a project, and their relationship to surrounding structures are examined. The land uses included in a new project are studied in relation to the existing environment. Efforts have been made to choose design elements which relate directly and are compatible with the surrounding structures. Masonry facades along the Southwest Corridor deck and Harcourt Street are an example of some specific design elements included in Copley Place which relate to neighboring buildings. In addition, the cornice height of the Western International Hotel base relates to the height of the Boston Public Library and the Copley Plaza Hotel. Final choices of materials, colors and textures in other areas will be carefully examined by the responsible agencies to ensure that they are compatible and complimentary to the historic districts by which Copley Place is surrounded.

C-13-3

The project as represented in the Draft EIR Supplement/Draft EIS represents a massing and general detail in conformance with the guidelines promulgated by the Citizens Review Committee. These guidelines play a significant part in shaping the design.

The proponent strongly disagrees, however, that the design is less an architectural statement than an expression of economic expediency.

C-13-4

This subject is covered in comments S-1-16 and C-1-5. The availability of off-street parking in the adjacent neighborhoods is, at present, severely limited because of current demand by existing development. There is no additional on-street parking available within a reasonable walking distance. Initially, some people may seek to find on-street parking, but it is expected that after a short period of time, they will be forced to adjust to the urban nature and transit orientation of the project.

C-13-5

See Response S-1-16.

C-13-6

The wind issue has not been ignored. Extensive wind tunnel testing has been undertaken by Bolt, Beranek and Newman, Inc. (BBN). Much of that work is documented in a report titled Pedestrian Wind Environment at Copley Place, Boston, Massachusetts. BBN concluded that the site is windy with or without the project. The windiness is attributable, in large part, to the windiness of the City and to the existing

high-rise structures in the area. BBN did not find that a reduction in the scale of the project buildings would provide significant reductions in local wind levels.

C-13-7

See Response C-14.

Urban Investment and Development Company and the City of Boston have agreed to an Employment Plan for construction and permanent jobs at Copley Place. The Employment Plan, which meets the required manpower standards of Mayor White's Executive Order of September 11, 1979, appears in the Copley Place Urban Development Action Grant (UDAG) Application submitted by the Boston Redevelopment Authority (BRA) to the U.S. Department of Housing and Urban Development (HUD) on April 30, 1980. A copy of the UDAG Application may be obtained from the Boston Redevelopment Authority, City Hall, Boston, Mass. 02201.

Part III, beginning on page 92, and specifically Section E, Employment Plan, page 125, details the goals and objectives in hiring, training, and monitoring. Other references to equal employment opportunities can be found in Part IV, Section B, and throughout the application.

In summary, UIDC and the City of Boston have agreed to the following goals for employing qualified individuals:

<u>Permanent Employment (6,286 jobs)</u>	<u>Construction Employment</u>
50% Boston Residents	50% Boston Residents
50% Women	25% Minorities
30% Minorities	10% Women
17.2% Residents of the "Impact Area"	
Good faith efforts to hire handicapped persons	

Minority Business Enterprises

The Bidder shall take affirmative action, as provided in this Provision, to have Minority Business Enterprises perform work and/or supply materials for services for a total price not less than 10% of the Contract price.

These goals are cited in the UDAG application and in section 7.12.1 of this report.

The Draft EIR Supplement/Draft EIS contained a listing of all streets, including dead end residential streets in the study area, and showed present and 1983 volume, speeds, and peak and off-peak hour percentages. These data were based on a 1979 base year analysis of that same information. The list included all streets in the impact area.

The Copley Place project is not predicated on traffic traveling through residential areas. On a number of local residential streets, no impact at all is expected because these streets are totally outside any reasonable traffic routings between Copley Place and the expressways and major street systems. A second group, that probably constitutes a majority of streets in the Back Bay, are those that are already affected by existing development, though the land uses in the Back Bay along these streets are predominantly residential. Beacon Street, Dartmouth Street, Commonwealth Avenue, Columbus Avenue, and West Newton Street are some of those that fall into this category. These streets are part of the City's street network, and are vital to transportation in the entire City and have always been important traffic carrying roadways. Other streets, such as Appleton, Chandler, Newbury, and Marlborough, are used mainly for local circulation. Any incremental Copley Place traffic volumes represent a small increase in volumes on these streets.

A number of the small residential streets were not covered in the traffic analysis because there was no impact expected on them. Small variations in traffic volumes are likely to occur on any street system as new traffic controls are initiated, traffic patterns are modified, and as existing land uses change. These are equally important factors affecting the traffic on most Back Bay streets. It is believed that the Draft EIR Supplement/Draft EIS was very careful in addressing the issue of additional traffic on Back Bay streets.

#### C-15-2

Both the air quality and noise analysis efforts were based on fairly standard, and generally accepted predictive techniques. These techniques predicted peak expected air pollution and noise levels associated with the project, not averages. Air quality studies, for example, assumed peak traffic volumes, combined with adverse meteorological conditions. The resultant case is expected to happen no more than once per year. Likewise, noise levels calculations assumed simultaneous operation of major construction equipment across the site. This situation represents a peak expected noise level rather than an average value. The  $L_{eq}$  value used in the noise study is commonly thought to be the best measure being used to account for the fluctuations in traffic and urban noise as well. The  $L_{eq}$  is an energy average measure, as opposed to  $L_{50}$ , which is the mean noise level.  $L_{eq}$  accounts for extremely high noise levels over a short period of time (e.g., horns, brakes, etc.).

#### C-15-3

Insofar as Level of Service in residential neighborhoods is concerned, most residential streets in Back Bay operate at Level of Service C or better and are expected to continue to do so. The volumes on most residential streets is quite low, on the order of 200 to 2,000 vehicles per day, which is generally considered to be the range of volumes for neighborhood residential streets. (See also Response C-1-1.)

#### C-15-4

The UDAG application for street improvements associated with Copley Place includes a statement indicating the City will seek to implement a resident parking sticker program (see Response S-1-16).

As noted in an earlier comment, it is possible that when the project is first opened, people unfamiliar with the area will try to find on-street parking. It is believed that the lack of such parking will soon discourage these people. The effect will be an increase in the use of public transportation to reach the site.

It should be noted that the addition of parking spaces in the City is limited by the Air Pollution Control Commission, which is, in turn, regulated by federal statutes concerning the control of increase in, or modifications to, the parking supply within the City of Boston parking freeze boundaries. Copley Place falls within this area.

Reference to the alternative routes and intersections that might be taken by traffic avoiding existing points of congestion has been covered earlier, and traffic assignments have been made and presented as part of the Response S-1-13. It is recognized that some streets could be impacted by a shift in routings. It has been noted where these reassigned trips would reduce existing Levels of Service or impact other intersections that are congested.

Insofar as parking for construction is concerned, the City of Boston has had experience with construction workers parking. Construction parking has been effectively controlled in a number of urban projects by rigid police enforcement, by including severe language in union contracts for people working on these projects, and by the contractors acting in their own interests. As the Copley Place project progresses, a parking strategy for dealing with construction workers would be included as part of the ongoing traffic work. The requirement of a relatively high proportion of Boston residents in the construction workforce also may ensure better worker accessibility by transit.

C-15-5

The writer is correct in the assessment that his calculated densities are likely not equal to the density of

the Copley Place project, but then it would seem that only 4-to 6-story residential development would be equivalent, and therefore, compatible with the existing neighborhood.

To compare Copley Place to the Prudential Center is also misleading. A recognized major component of the Prudential is high-rise apartment development.

Careful attention is being given to pedestrian level activity so as to avoid the perception of a monolithic development.

The Copley Place project, rather than being an obstacle to pedestrian movement, as the writer insists, will be a focus of pedestrian activity (see Section 7.4.7). It will bring vitality and life to what is now a pedestrian wasteland.

#### C-15-6

Extensive wind tunnel modeling has been undertaken over the past four months. The results of this modeling are documented in the report titled Pedestrian Wind Environment at Copley Place, Boston, Massachusetts, September 1980, by Bolt, Beranek and Newman (BBN).

BBN has attempted to discuss both changes in local winds speeds, and the significance of wind speeds with and without the project. The significance of the wind speeds is discussed in terms of pedestrian comfort criteria. The results of the modeling, including the pedestrian comfort criteria, are summarized in Sections 6.7 and 7.7 of this report.

#### C-15-7

Table 7.8-3 of this report indicates that peak construction noise levels, excluding impact devices such as pile drivers, may reach 77.9 dB ( $L_{eq}$ ). The City noise regulation governing construction noise indicates (excluding impact devices) that noise generation by construction activity should not exceed  $L_{10} = 75$  dB for residential sites, or

$L_{10} = 80$  dB for commercial sites. However, construction noise levels must be at least 5 dBA above the ambient noise level to exceed the City's regulation. Although the suggested residential exposure level may be exceeded, the suggested commercial exposure level will not, since at no time will construction noise increase ambient noise levels by 5 dBA.

UIDC will ensure that its contractors are made aware of construction noise problems. Newer, quieter heavy duty construction equipment will be assigned to the portion of the site nearest the Harcourt Street residences to minimize potential for disturbances.

The wind tunnel modeling has shown that Harcourt Street is not an area with major wind problems. No design changes appear warranted to protect pedestrians in that area from excessive wind levels. Please see the wind tunnel modeling reports which are available at the Boston Public Library and at the BRA.

C-15-8

See Response C-12, and Section 7.11 of this report.

C-15-9

See Response F-2-2.

It has not been claimed that Copley Place will incur no service costs. However, Copley Place tax revenues should more than offset direct costs. The project is expected to have little or no impact, for example, on Police or Fire costs. In fact the presence of the project, with its activity and private security force, should be a positive factor. There is no indication that service demands by the project will be cause for reduced quality of public services to abutting neighborhoods.

C-15-10

The land use of Copley Place is consistent with that proposed in the 1965-75 General Plan explained in Section 3.3. The project involves development of a vacant parcel of property which currently generates no income or benefits. Development entails relocation of neither residences nor business. The project creates jobs, taxes, and presents a valuable opportunity to link the abutting land use activities. The developer has participated in an extensive citizen participation process and is building in response to the guidelines established in the citizen review process. The project will provide hotel and convention, office, retail and residential facilities on a site served directly by public transportation facilities and the Massachusetts Turnpike. In short, it is the feeling of the project sponsors that land use impacts of Copley Place are particularly positive, especially when compared with the no-build alternative.

C-15-11

Regarding displacement, see Response C-2-1.

Regarding Tent City, see Response C-11-5.

Regarding employment provisions, see Response C-14 and Section 7.12.1.

Regarding housing programs, see Section 7.12.2.

C-15-12

It is not an uncommon practice in projects of the magnitude of Copley Place, in which construction techniques such as pile-driving or dewatering are used, for "crack surveys" of buildings adjacent to the project site to be included in the construction contract. These surveys typically are conducted before commencement of any construction, and are

limited to an examination of the condition of the exterior masonry (or wood frame) of adjacent building; they do not involve detailed structural assessments.

At this time, UIDC does not anticipate conducting such surveys because of the extremely low likelihood that construction activities on-site will result in any off-site adverse impacts to adjacent structures.

C-15-13

This issue is being addressed by the BRA, the Traffic Commission, the Turnpike Authority, and by other agencies.

C-15-14

The ratio of one parking space for every two units of housing is typical, if not on the high side, for housing of this nature in this type of location. (It exceeds the City of Boston zoning requirements.) More important, it is considered to be a very adequate ratio of parking supply for this housing.

C-15-15

Any Harcourt Street traffic associated with the Copley Place project will be physically separated from St. Botolph Street so that all traffic will flow from Huntington Avenue. Harcourt Street is an existing city street and has been included in the overall planning for the site. A portion of Harcourt Street will be discontinued and will provide a vital access for service vehicles. It also segregates service vehicles from automobile circulation for the hotel.

The circulation of pedestrians between the project and Harcourt Street housing should be allowed. One intent of the project design is not to isolate any aspects of the project that are mutually acceptable. It would seem that the establishment of a pedestrian route between the Harcourt Street

housing and the project will enhance a connection between the project and the South End that will be beneficial. In particular, it opens up the Southwest Corridor deck to the project and vice versa.

C-15-16

As noted in Section 3.3 of this report, the development of Copley Place is consistent with long-standing City plans for the area and is in conformance with the General Plans objectives for a Copley Square sub-center.

C-16-1

The design is consistent with the CRC guidelines. At this time, there are a number of outstanding design issues as stated in this document. Parties involved are working toward a resolution of these issues.

Regarding design review process, see Response F-1-1.

C-16-2

See Response C-9: III Point 5.

C-16-3

The traffic report has highlighted the possibility that there may be some increases in traffic on South End streets that are project oriented. There have been some routings of Copley Place traffic along South End streets, but only those that are established collector or higher level streets. There has been no routing of traffic (nor is any significant amount expected) along streets which are purely local in nature. The commentor's proposed changes in traffic direction, and a narrowing or closing of roadways and key blocks, could be an effective way of limiting through traffic in residential areas. A number of South End organizations are, in fact, in communication with the Traffic Commissioner on the subject.

C-17

The commentor's remarks are acknowledged. The proponent, however, feels that the development's design will be a positive addition to its surroundings and to the City.

Also see Responses C-9: III Point 5 and F-1-1.

C-18

See Responses C-9 and C-11.

A study of taxis at hotels was included in the background work for the Draft EIR Supplement/Draft EIS. Taxis have been included in the traffic volume projections and the modal split calculations. The Copley Place developer, however, cannot predict the routings or behavior of taxi drivers. Obviously, fares to and from the project will have to use South End and Back Bay streets. Taxis will probably use the major street system because, in most cases, it is least time consuming.

C-20

See Response S-1-3.

C-21-1

See Response S-1-3. Also see section 7.7.2 of this report.

C-21-2

See Response C-14.

This comment alleges that new housing which is planned for the impact area cannot address the needs of anyone who might be displaced by Copley Place because these units were planned for, and needed by, those families displaced by urban renewal.

Although many of the 1,500 units of proposed assisted housing listed in the EIR/EIS were in fact a part of the Urban Renewal Plan, the fact remains that the caseload of families eligible for, or in need of, relocation because of urban renewal is not sufficient to fill these units. The caseload is in fact virtually nil. During the past 2-1/2 years, displacement for public development in the Fenway and South End has been minimal. By the beginning of 1978, 94% of the caseload in the Fenway had been permanently relocated. In the South End, 97.6% of the caseload has been similarly relocated.

These figures are significant because they mean that the 1,500 assisted units will be available, virtually in entirety, for households which might be displaced by Copley Place or the other forces at work in the impact neighborhoods.

The displacement impact of Copley Place will not be "massive," but modest (see Response C-2-1). The displacement that will continue to occur in the impact area is the result of a variety of pressures operating on the area, enumerated in Section IV-A. of the ERA study. Copley Place's impact will be modest compared to the impact of the rest of these pressures.

C-23

See Response C-2-1.

Section 3.1 of the Draft EIR Supplement/Draft EIS contains a discussion of several alternatives that were considered for the Copley Place development consistent with the goals and objectives of the City's General Plan. In addition, Section 5 details the preferred plan and optional development, the no-build alternative, and the 1978 development proposal, and the discussion of the probable impact of the project and its alternatives (Section 7) does describe the impacts of these various alternatives.

With respect to the Tent City development as an alternative to mitigate impacts on the South End, the Draft EIR/EIS specifically noted that the BRA currently is seeking proposals for the construction of approximately 270 units of mixed income housing on the Tent City site (pp.3-27, 7-175). With respect to the guarantee of job goals, see Response C-14.

C-25-1

The one percent wind speeds are used for a point for comparison. Appendix D provides more detailed information regarding predicted wind speeds at each location and the physical processes giving rise to these winds. The speeds given will be exceeded "on the average" one percent of the time. This implies the degree of uncertainty that the winds will be exactly the same from one year to the next.

Median winds were not studied. While this information would be interesting impacts are better measured using the higher wind speeds that disrupt pedestrian activity.

C-25-2

Comment S-5-26, and the corresponding response, specifically address the issue of tolerability versus acceptability versus comfort.

C-25-3

The revised Figure 1 of the final wind report, cited in Response S-5-2, shows more of what was included in the model and labels each sensor location. Appendix D provides a point by point description of the wind environment at each sensor and specifically addresses the impact of the proposed Copley Place Project on wind along Huntington Avenue.

C-25-4

The Developer will pay for all on-site improvements to the Copley Place Development. Additional work involving mitigating measures will be submitted to BRA for review.

Also see Response F-5.

C-25-5

The degree to which mitigating measures can reduce winds was tested experimentally, where possible. Any results of this discussion are included in Appendix D of the final report.

Also see Response F-5.

C-25-6

The final report, it is hoped, includes the additional levels of detail requested.

Section 7.7 of the Final EIR/EIS report includes the percentage of time that the suggested threshold will be exceeded and the windiest locations. Appendix D of the final report provides a specific treatment of each sensor location with regard to the directions from which the winds create the largest problems arise.

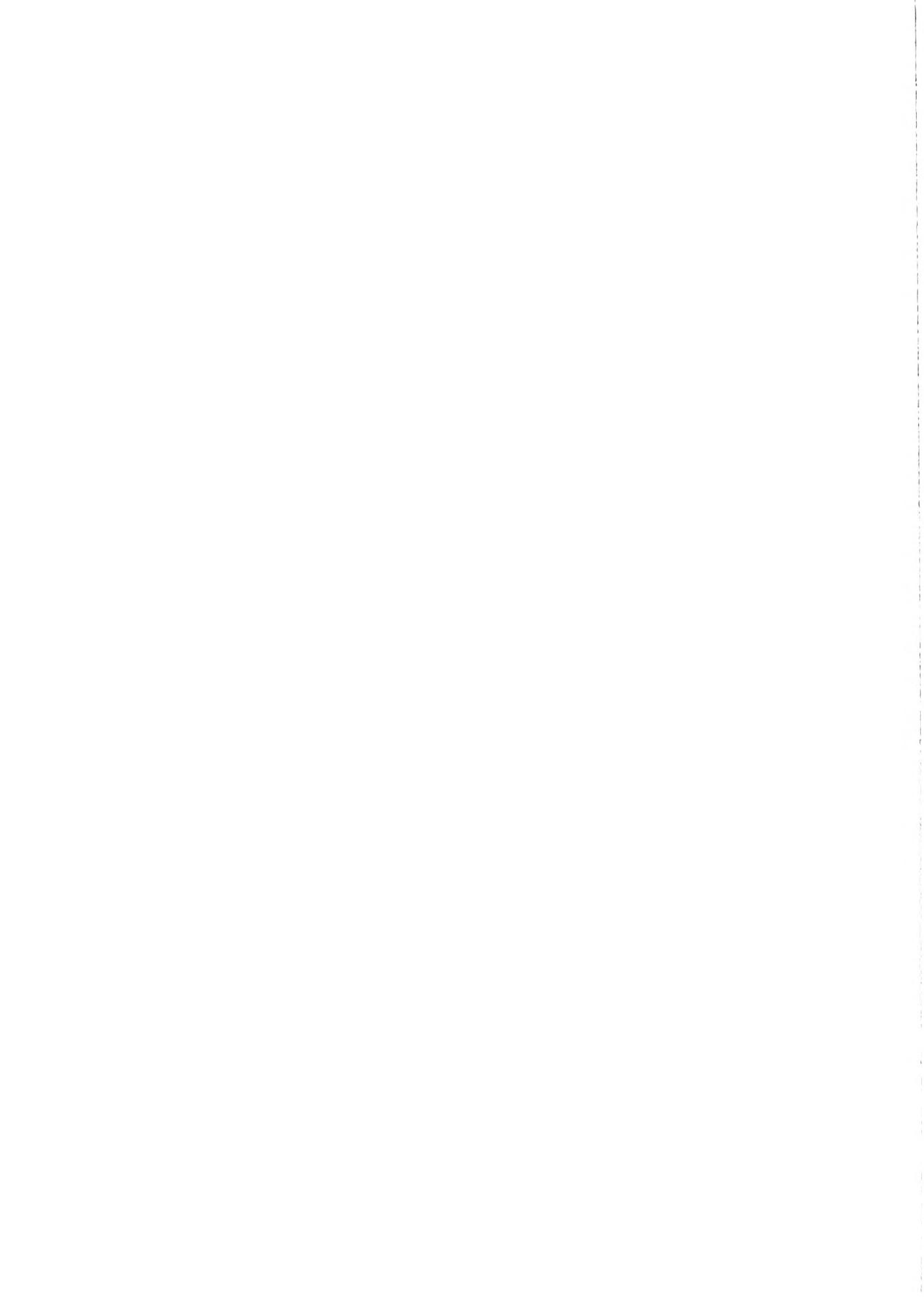
## APPENDIX A

DEVELOPMENT PROGRAMS DESCRIBED IN DRAFT EIR AND  
DRAFT EIR SUPPLEMENT/DRAFT EIS (1978 & 1979 PROGRAMS)



APPENDICES

- A - DEVELOPMENT PROGRAMS DESCRIBED IN DRAFT EIR AND DRAFT EIR SUPPLEMENT/DRAFT EIS (1978 & 1979 PROGRAMS)
- B - SCHEDULE OF CRC MEETINGS
- C - A-95 COMMENTS
- D - NATIONAL REGISTER PROPERTIES DESCRIPTIONS
- E - SOIL BORING DATA
- F - GROUNDWATER DATA
- G - SECTION 106 REVIEW LETTER
- H - PUBLIC SERVICE LETTERS
- I - ENERGY
- J - SUMMARY OF IMPACTS FOR THE 1978 AND 1979 DEVELOPMENT PROGRAMS
- K - DESIGN REVIEW AGREEMENT



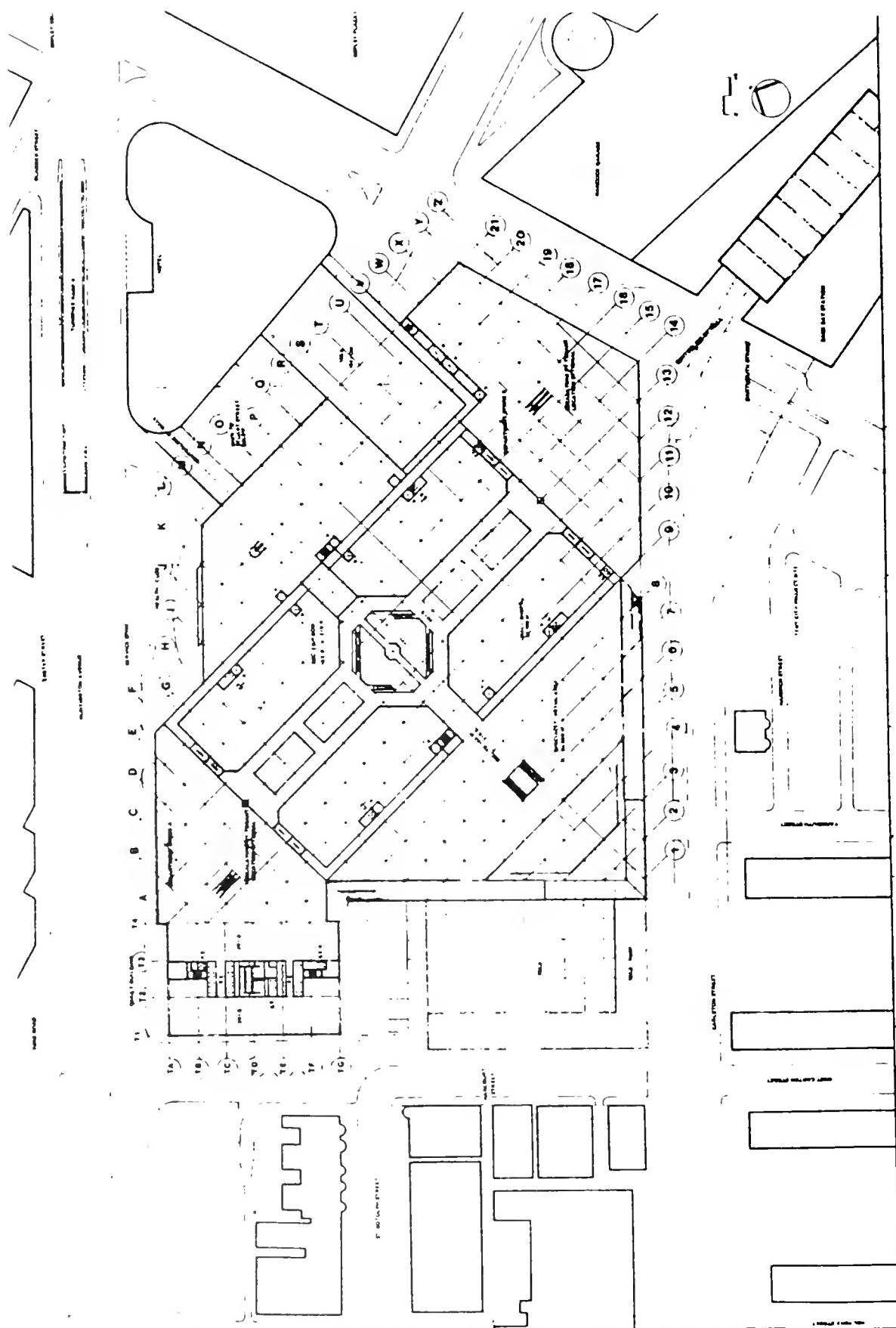
1978 PROGRAM

TABLE 2.1-1  
SUMMARY OF PROJECT

	<u>Gross Building Area</u>	<u>Gross Leasable Area</u>
<u>Basic Plan (June 1978):*</u>		
Hotel (including related parking)	1,002,900 Sq. Ft.	696,932 Sq. Ft.
Office Building	611,760	523,348
Retail Center (Mall and two Department Stores)	1,025,434	633,274
Housing (100-150 units)	83,900	83,900
Parking (867 spaces)	<u>340,800</u>	<u>340,800</u>
Total	3,244,794 Sq. Ft.	2,278,254 Sq. Ft.
<u>Addition (October 1978):</u>		
Retail Center (one Department Store)	180,000	130,000
Parking (350 spaces)	<u>139,200</u>	<u>139,200</u>
Sub Total	<u>269,200</u>	<u>269,200</u>
<u>Current Plan Total:</u>	3,563,944 Sq. Ft.	2,547,454 Sq. Ft.

"CURRENT PROGRAM", MALL LEVEL 3 PLAN, 201

FIGURE 7.1-8



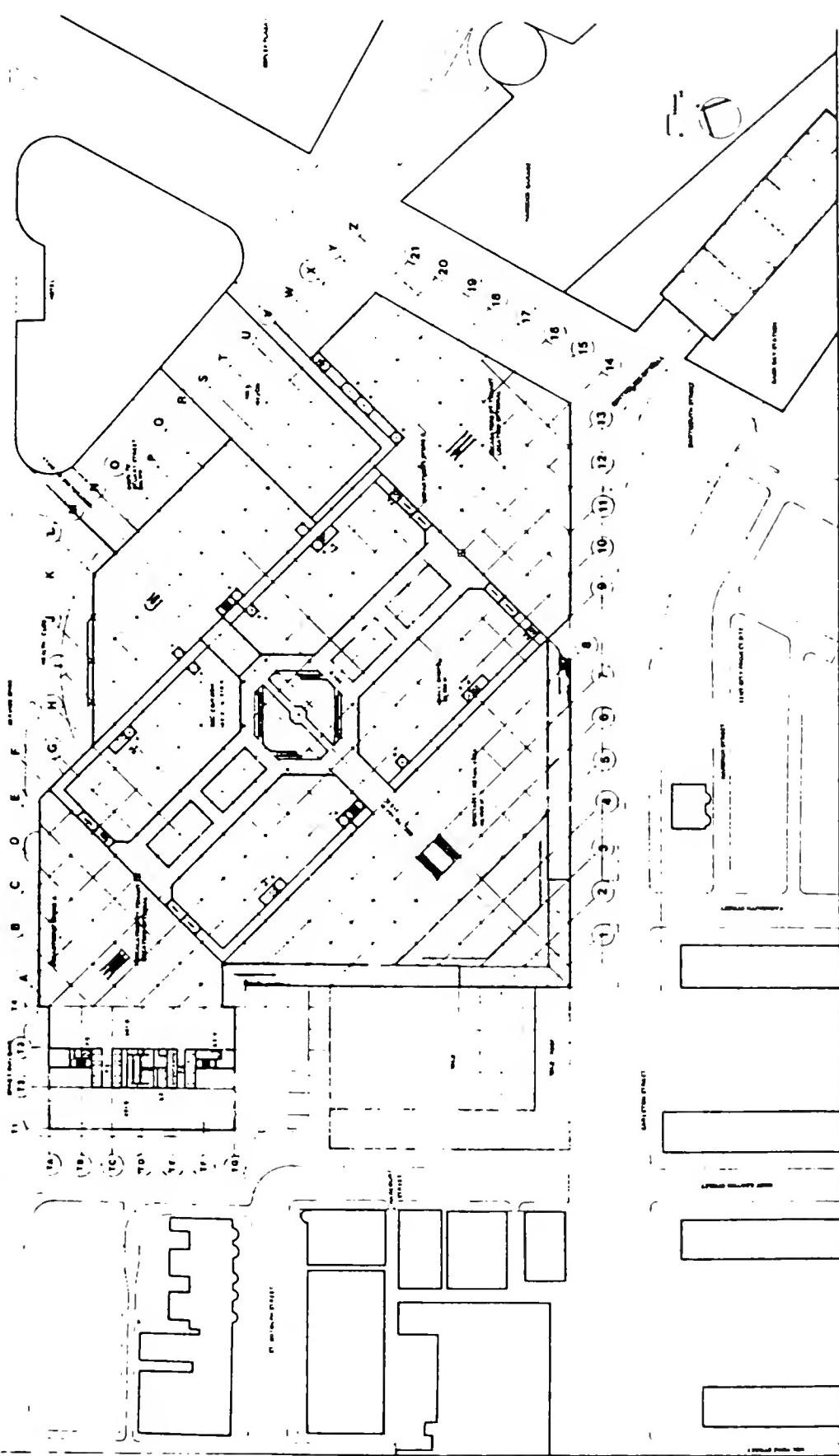


FIGURE 7.1-8  
"CURRENT PROGRAM", MALL LEVEL 3 PLAN, 201

Copley Place  
Development Program as  
Source: Copley Place E

## DRAFT EIR SUPPLEMENT/DRAFT EIS

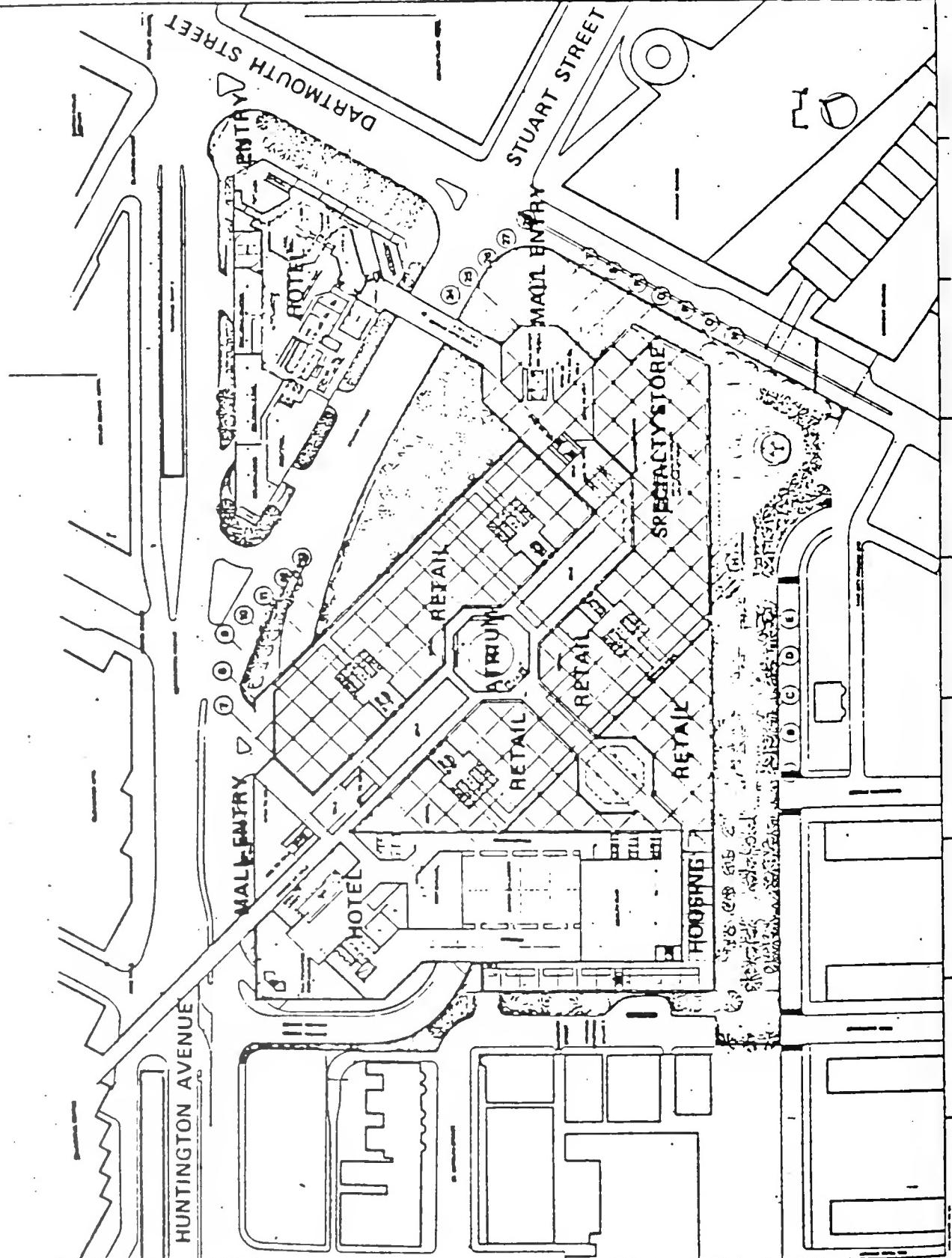
## SUMMARY OF COPELY PLACE DEVELOPMENT PROGRAM

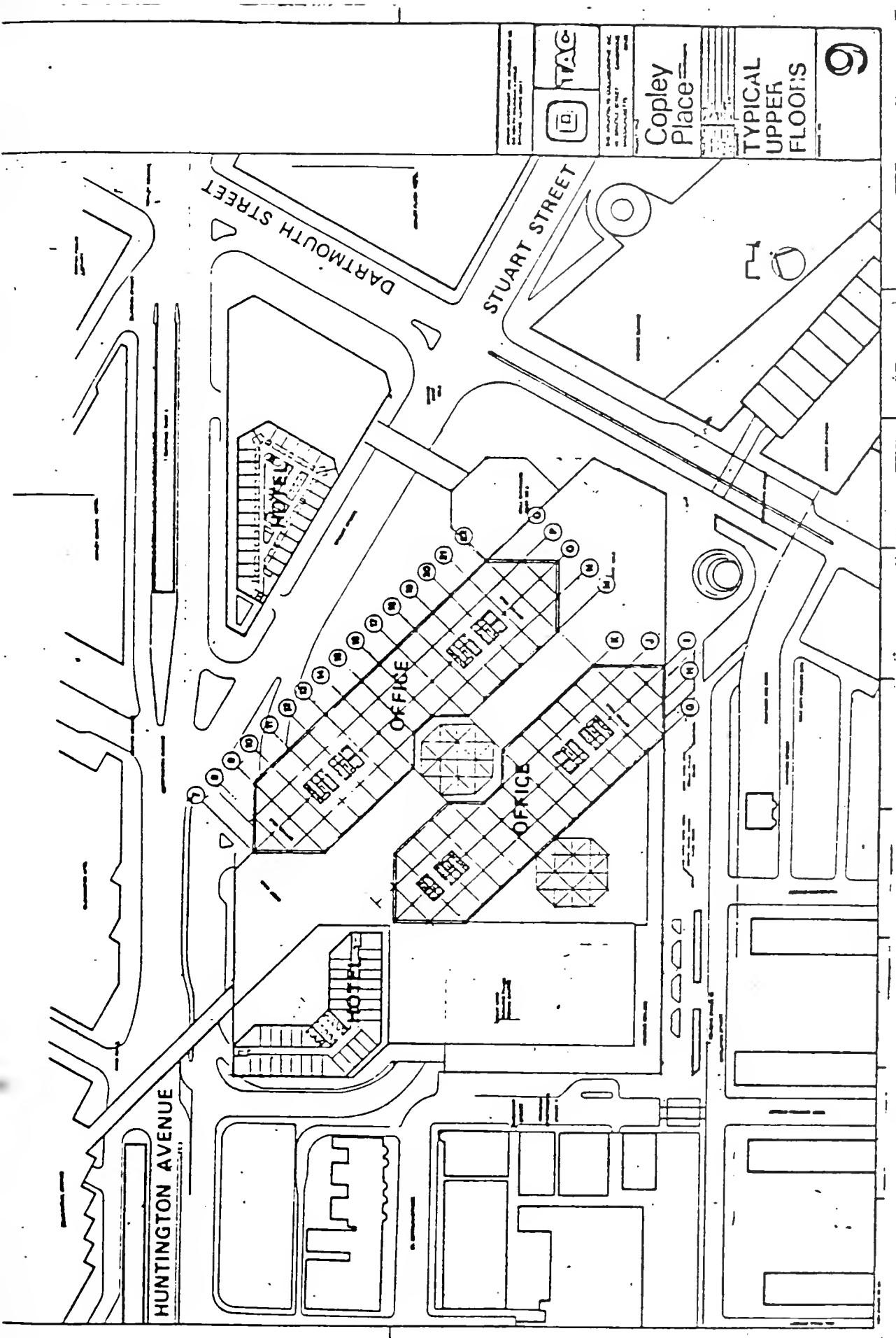
NA = not applicable

## DRAFT EIR SUPPLEMENT/DRAFT EIS

## SUMMARY OF COPELEY PLACE DEVELOPMENT PROGRAM

<u>PROGRAM ALTERNATE (without Specialty Department Store)</u>		<u>Gross Building Area S.F.</u>	<u>Retail/Office Gross Leasable Area S.F.</u>
<u><b>Retail</b></u>			
Mall Shops, Restaurants, etc.		120,000	120,000
Cinemas, Health Club Community Retail		58,100	58,100
Service Level, Mall, Circulation, Mechanical		<u>120,000</u>	<u>NA</u>
Total Retail		298,100	178,100
<u><b>Office</b></u>		950,000	836,000
<u><b>MAINING PROGRAM ELEMENTS</b></u>	Same as Specialty Department Store Program		
Total Alternate Program Areas		<u>3,214,890</u>	<u>1,014,100</u>





Source: Handout at 5/31/79 CRC meeting

DEVELOPMENT PROGRAM AS OF 5/24/79



**APPENDIX B**

**SCHEDULE OF CRC MEETINGS**



## Complete CRC Schedule of Meetings

### 1977 Information and Concerns

May 19: Orientation  
June 2: Legal and Traffic Issues  
June 9: Physical Constraints  
June 16: Development Economics, Business Impact, and Community Economic Development  
June 23: Scheduling and Summary  
Traffic Working Group  
June 30: Interim Report Distribution

### Recommendation Development

July 7: Community Economic Development  
July 13: St. Botolph Working Group  
July 14: Impact on Back Bay Businesses  
July 15: Working Group on Business Opportunities  
July 26: Working Group on Jobs and Training  
July 28: Preliminary Physical Design Presentation  
July 29: Working Group on Business Opportunities  
August 4: Neighborhood Stabilization  
August 12: Working Group on Business Opportunities and Jobs  
August 18: Draft Recommendations and Revised Schematic Design  
September 3: Comments and Revisions of Draft submitted to CRC  
September 16: Discussion of Revisions  
September 22: Recommendations submitted to State, MBTA, developer

1978 June 15: Introductory Meeting  
July 6: Environmental Impact Review  
July 13: Pedestrian and Design Issues  
July 20: Economic Impact  
July 26: Traffic Impact  
August 3: Social Impact  
August 10: Summary Meeting and Recommendations

1979 February 22: Review of necessity for Copley Place re-study  
May 24: General meeting to start new round of CRC meetings (UIDC handout #1)  
May 31: Review of new design and program (UIDC handout #2)  
June 14: Review of public benefits and public funding requirements (UIDC handout #3)  
June 27: Transportation planning issues - session 1, Methodologies (UIDC handout #4)  
July 12: Environmental Issues - session 1. Outline of proposed EIR/EIS (UIDC handout #5).  
August 2: Review of scope of services for retail and housing impact studies (no handout for meeting #6)  
August 9: Transportation planning issues - session 2 (UIDC handout #7).  
August 16: Design review and housing review (no handout for meeting #8)

1979 (cont'd)

August 30: Environmental issues - session 2. Geology, energy conservation, noise, historic properties, wind, air quality (UIDC handout #9).

September 6: Environmental issues -- session 3. Traffic and air quality (UIDC handout #10).

September 20: Workshop on Housing Impact Study. (ERA handout)

November 8: Meeting on Retail Impact Study, UDAG Public Hearing Process.

November 15: Meeting on Housing Impact Study, Public Approvals Process, and UDAG Application components.

1980 March 6: Meeting on Draft EIR/EIS and public hearing format.

April 14: Update meeting on UDAG application.

APPENDIX C

A 95 COMMENTS



copy to Lucas D.  
Paul C.

Metropolitan Area Planning Council, 44 School St., Boston, MA 02108, Tel. 617/523-2454

May 11, 1979

Mr. Roy Bishop  
Director  
Office of Federal Relations  
City Hall - Room 957  
Boston, Massachusetts

RE: Urban Development Action Grants:  
Copley Place/Crosstown Industrial Park,  
Parcel 2. (Received June 7, 1979)

Dear Mr. Bishop:

In accordance with the provisions of the U.S. Office of Management and Budget Circular A-95, the Metropolitan Area Planning Council, as the metropolitan clearinghouse, has received the above-referenced Notification of Intent to apply for federal financial assistance.

When your final application is prepared, we would appreciate receiving a copy of it.

Very truly yours,



Jonathan G. Truslow  
Acting Executive Director



Commonwealth of Massachusetts

# Executive Office of Communities and Development



Edward J. King, Governor  
Byron J. Matthews, Secretary

## Office of the Secretary

100 Cambridge Street Room 1404 Boston, Massachusetts 02202 (617) 727-7765

July 9, 1979

Mr. Roy Bishop, Director  
Office of Federal Relations  
City Hall, Room 957  
Boston, MA 02201

Re: A-95 Review/Copley Place - UDAG  
State Application Identifier: 79060723

Dear Mr. Bishop:

Your notice of intent requesting \$12,000,000 from the Department of Housing and Urban Development has been received for review. These funds will provide for site preparations and related public improvements for the Copley Place development.

As the Governor's designated State Clearinghouse, our review follows the guidelines of OMB Circular A-95. It is designed to provide advisory comments on the consistency of your proposal with State plans, policies, and objectives.

During our review of your proposal, a summary was published in the A-95 Review Monitor, which is distributed to over fifty State agencies. Any interested agency was provided with the opportunity to evaluate your proposal for consistency with its particular policies and objectives. The Massachusetts Historical Commission's comments have been enclosed for your information.

The Executive Office of Communities and Development concurs with your proposal based upon the information received. Upon receipt of the full application we will conduct a more comprehensive review of the Copley Place proposal.

Sincerely,

Byron J. Matthews  
Secretary

c.c. MAPC

**Proposal Review Form**

State Clearinghouse  
Office Of State Planning  
Room 2101  
One Ashburton Place  
Boston, Massachusetts 02108

**Patricia Weslowski, MHC**

Reviewer

June 18, 1979

Date

The following

- Application  
 Notice of Intent  
 Other

is before the Office of State Planning for A-95 review. As per your request this information has been forwarded for your review and comments.

79060723

SCI

City of Boston

Applicant

Copley Place UDAG Application

Proposal

Location of Proposal

Review Required:

- State Clearinghouse (A-95) review. In your review, focus on the proposal's compatibility with your agency's plans, programs, and objectives.
- Environmental Impact Statement and/or Environmental Impact Report. You are requested not to comment on the advisability of the proposal; your review should focus on the report's analysis of the potential impacts, and its thoroughness.
- Other:

Office of State Planning Contact Person

Phone:

July 2, 1979

C494

Reply Due Date

For your convenience, you may use the space below for your comments. Alternatively, you may return your comments on an attached sheet.

- Concur with proposal; no comment  
 Concur with proposal; comments attached  
 Need more information; questions attached  
 Do not concur with proposal; explanation attached  
 EIS/EIR: report found to be adequate, comments (if any) attached  
 EIS/EIR: report found inadequate; noted inadequacies attached  
 Have no comment, as proposal is not relevant to our concerns

Comments:

Comments attached

This project will effect historic properties; however, the project developer is aware of the effects of the project, and is aware of the responsibility of compliance with Section 106 of the National Historic Preservation Act of 1966 (36 CFR 800).

If you should have further questions, please contact Joe Orfant of the Massachusetts Historical Commission (727-8477)

Signature

*Patricia L. Weslowski*

Date

*6/29/79*

Reviewer (if different from signatory)

Send white copy to State Clearinghouse, Office of State Planning, Room 2101, One Ashburton Place, Boston, MA 02103. (Phone (617) 727-4151) retain pink copy for your records.



APPENDIX D

NATIONAL REGISTER PROPERTIES DESCRIPTION



NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY - NOMINATION FORM

(Type all entries complete applicable sections)

STATE:	Massachusetts
COUNTY:	Suffolk
FOR NPS USE ONLY	
ENTRY DATE	

## 1. NAME

COMMON:

Back Bay Historic District

AND/OR HISTORIC:

Sometimes known as the New West End.

## 2. LOCATION

STREET AND NUMBER:

Described under no. 7.

CITY OR TOWN:

Boston.

CONGRESSIONAL DISTRICT

8th and 9th Cong.-District

STATE

Massachusetts

CODE

025

COUNTY:

Suffolk

CODE

025

## 3. CLASSIFICATION

CATEGORY  
(Check One)

OWNERSHIP

STATUS

ACCESSIBLE  
TO THE PUBLIC District     Building Public     PrivatePublic Acquisition:  
 In Process  
 Being Considered Occupied Site Structure Object Both     

Yes

 Restricted Unrestricted No

PRESENT USE (Check One or More as Appropriate)

- |   |  |   |  |                                   |
|---|--|---|--|-----------------------------------|
| <input type="checkbox"/> Agricultural             | <input type="checkbox"/> Government        | <input checked="" type="checkbox"/> Park              | <input type="checkbox"/> Transportation        | <input type="checkbox"/> Comments |
| <input checked="" type="checkbox"/> Commercial    | <input type="checkbox"/> Industrial        | <input checked="" type="checkbox"/> Private Residence | <input type="checkbox"/> Other (Specify) _____ |                                   |
| <input checked="" type="checkbox"/> Educational   | <input type="checkbox"/> Military          | <input checked="" type="checkbox"/> Religious         |  |                                   |
| <input checked="" type="checkbox"/> Entertainment | <input checked="" type="checkbox"/> Museum | <input type="checkbox"/> Scientific                   |  |                                   |

## 4. OWNER OF PROPERTY

OWNER'S NAME:

Public and Private

STREET AND NUMBER:

CITY OR TOWN:

Boston

STATE:

Massachusetts

CODE

025

STATE:  
Mass.

## 5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.:

Registry of Deeds, Suffolk County Courthouse

STREET AND NUMBER:

Pemberton Square

CITY OR TOWN:

Boston

STATE:

Massachusetts

CODE

025

COUNTY:  
SUFFOLK

## 6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY: INVENTORY OF HISTORIC ASSETS OF THE COMMONWEALTH

DATE OF SURVEY: 1973

 Federal State County Local

DEPOSITORY FOR SURVEY RECORDS: MASS. HIST. COMMISSION

STREET AND NUMBER:

40 BENSON ST.

CITY OR TOWN:

Boston

STATE:

Massachusetts

CODE

025

FOR NPS USE ONLY  
ENTRY NUMBER  
DATE

## 7 DESCRIPTION

CONDITION	<input checked="" type="checkbox"/> Excellent	<input checked="" type="checkbox"/> Good	<input type="checkbox"/> Fair	<input type="checkbox"/> Deteriorated	<input type="checkbox"/> Ruins	<input type="checkbox"/> Unexposed
	(Check One)			(Check One)		
	<input checked="" type="checkbox"/> Altered	<input checked="" type="checkbox"/> Unaltered		<input type="checkbox"/> Moved	<input checked="" type="checkbox"/> Original Site	

DESCRIBE THE PRESENT AND ORIGINAL (If known) PHYSICAL APPEARANCE

P.I.

For description of legal boundaries see Continuation page 3.

The Back Bay is presently a densely built up area of fashionable apartments, office and business facilities, schools and other institutions. Most of its original structures survive, and despite many variations in architectural style, they are distinguished by a general consistency of character, form, and scale. Enclosed within well-defined bounds, the Back Bay comprises, in effect, an easily discernable enclave of superior nineteenth century architecture in the city proper. Since 1966 the residential portion of the Back Bay has been a legally established architectural conservation district under the jurisdiction of the Back Bay Architectural Commission.

The streets of the Back Bay are arranged in a regular grid of rectangular blocks oriented longitudinally along five main axis avenues and intersected at equal intervals by less important transverse streets. The core of this system is Commonwealth Avenue. Laid out as a grand boulevard along the central axis of the grid, it includes a wide, elm-shaded, pedestrian mall within its 240 foot width and 1 1/8 mile length from the Public Garden to Charlesgate East. The other principle axis streets are Beacon, Marlborough, Newbury, and Boylston. The cross streets, named for English nobility and occurring in successive alphabetical order are: Arlington, Berkeley, Clarendon, Dartmouth, Exeter, Fairfield, Gloucester, Hereford, followed by Massachusetts Avenue and Charlesgate East.

At Boylston Street, between Clarendon and Dartmouth Streets, the original grid was intersected by the diagonal swath of Huntington Avenue. Copley Square, the result of this interruption in the grid, remains the most important public space in the district. The Public Library (McKim, Mead, and White, 1887), Trinity Church (H. H. Richardson, 1877), Old South Church (Cummings and Sears, 1875), and the Copley Plaza Hotel (Henry Hardenburgh, 1912) define the square and characterize its public importance. Across the district from Copley Square, the Storrow Embankment was created as a park in 1931 along the southern bank of the Charles River Basin. It contains, in addition to an automobile parkway, a small man-made lagoon and the Hatch Memorial Shell, where free concerts and entertainments are given during summer months.

By far the largest number of Back Bay structures were originally built as private houses in the second half of the nineteenth century. There are, however, significant numbers of churches, public buildings, apartment buildings, hotels, schools, club-houses, and commercial buildings also represented here.

SEE INSTRUCTIONS

(See Continuation page 7b)

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	Massachusetts	
COUNTY	Suffolk	
FOR NPS USE ONLY		
ENTRY NUMBER		DATE

(Number all entries)

7-Description (Cont.) Back Bay District

p. 2.

Taken together these buildings comprise a vast number of building styles executed in the sixty formative years of architectural development in the Back Bay. Represented are the Italianate, French Academic, Gothic, Ruskinian Gothic, Panel Brick, Queen Anne, Richardsonian Romanesque styles—and the later Revivals, the Italian Renaissance, German Renaissance, Beaux Arts, Chateau-esque, Georgian, Federal, and Adamesque. While pure examples of every style exist, variations combining elements from two or more styles are common.

Beacon Street, Marlborough Street, Commonwealth Avenue; and most of the cross streets have maintained their residential character and are built up almost exclusively with townhouse and apartment buildings. Of these, the townhouses predominate. They are typically of attached rowhouse construction, eighteen to thirty, but occasionally as much as fifty, feet wide, and built of brick or masonry. They generally consist of an ordered arrangement of entry (side or central), approached by a stone stoop, the principal floors set above a raised, rusticated basement and capped with a mansard roof, often with dormer windows and balustrade or iron cresting.

The consistency with which all houses obey a mandatory setback from the street, the overall uniformity of cornice heights, and the constant repetition and reinterpretation of basic decorative elements, i.e. bay windows, balconies, stairways, cornices, door and window enframements, create a homogeneity and continuity in Back Bay blocks that reinforces the broad, lineal avenue plan. Architectural conservatism and the common lack of aggressive design in Back Bay houses also contribute to the visual subordination of individual buildings and the strongly pronounced assertion of the block front.

On Newbury and Boylston Streets, the original residential character has changed. Newbury Street still retains many fine, original nineteenth century houses, but commercial inroads have introduced storefronts and other exterior alterations. It is now an area of small specialty shops and art galleries. Boylston Street has few original buildings remaining, but contains the area's most important commercial architecture. Though now devoted almost exclusively to business, it remains a cohesive part of the Back Bay through the sympathetic scale of its buildings and the strong unity of the Back Bay plan.

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY - NOMINATION FORM  
*(Continuation Sheet)*

STATE	Massachusetts	
COUNTY	Suffolk	
FOR NPS USE ONLY		
ENTRY NUMBER		DATE

(Number all entries)

## 7—Description (Cont.)

Back Bay District  
DESCRIPTION OF BOUNDS

p. 3.

The Back Bay District includes the property bounded and defined in the following manner:

Starting at the intersection of the midline of Arlington St. and the midline of Providence St.;

Thence running northerly by the midline of Arlington St. to the midline of Beacon St.;

Thence running westerly by the midline of Beacon St. to the midline of Embankment Road;

Thence running northerly along the midline of Embankment Road, crossing Storrow Drive, and extending to the southerly perimeter of the Hatch Shell grounds;

Thence running northeasterly along the perimeter of the Hatch Shell grounds to the rear perimeter of the Hatch Shell;

Thence running northwesterly along the rear perimeter of the Hatch Shell and extending to the southern shore of the Charles River Basin, (known at this point as the boat haven);

Thence running westerly along the northern perimeter of the Storrow Embankment, and intersecting with the extension of the midline of Charlesgate East;

Thence running southerly along said extension and the midline of Charlesgate East to the back lot lines of properties fronting on the south side of Newbury St.;

Thence running easterly along said back lot lines to the midline of Massachusetts Ave.;

Thence running southerly along the midline of Massachusetts Ave. to the midline of Boylston St.

Thence running easterly along the midline of Boylston St. to the western lot line of no. 710 Boylston St., now called the Lenox Hotel;

Thence running southerly along the said western lot line to the southern lot line of no. 710 Boylston St.;

Thence running easterly along said southern lot line, extending to the midline of Exeter St.;

Thence running southerly along the midline of Exeter St. to a point at the juncture of the midlines of Exeter St., Stuart St., and Huntington Ave.;

Thence running easterly along the midline of Stuart St. to the midline of Trinity Pl.;

Thence running northerly along the midline of Trinity Pl. to the midline of St. James St.;

Thence running easterly along the midline of St. James St. to the midline of Clarendon St.;

Thence running northerly along the midline of Clarendon St. to the midline of Providence St.;

Thence running easterly along the midline of Providence St. to the midline of Arlington St., the point of beginning.

## 8. SIGNIFICANCE

PERIOD (Check One or More as Appropriate)				
<input type="checkbox"/> Pre-Columbian	<input type="checkbox"/> 16th Century	<input type="checkbox"/> 18th Century	<input type="checkbox"/> 20th Century	.....
<input type="checkbox"/> 15th Century	<input type="checkbox"/> 17th Century	<input checked="" type="checkbox"/> 19th Century		
SPECIFIC DATE(S) (If Applicable and Known)				
AREAS OF SIGNIFICANCE (Check One or More as Appropriate)				
Aboriginal	<input checked="" type="checkbox"/> Education	<input type="checkbox"/> Political	<input checked="" type="checkbox"/> Urban Planning	
<input type="checkbox"/> Prehistoric	<input checked="" type="checkbox"/> Engineering	<input checked="" type="checkbox"/> Religion/Phi.	<input type="checkbox"/> Other (Specify)	
<input type="checkbox"/> Historic	<input type="checkbox"/> Industry	<input type="checkbox"/> Ideology		
<input type="checkbox"/> Agriculture	<input type="checkbox"/> Invention	<input checked="" type="checkbox"/> Science		
<input checked="" type="checkbox"/> Architecture	<input checked="" type="checkbox"/> Landscape	<input checked="" type="checkbox"/> Sculpture		land reclamation
<input checked="" type="checkbox"/> Art	<input type="checkbox"/> Literature	<input checked="" type="checkbox"/> Social/Human-Art		
<input type="checkbox"/> Commerce	<input type="checkbox"/> Military	<input type="checkbox"/> Theater		
<input type="checkbox"/> Communications	<input type="checkbox"/> Music	<input type="checkbox"/> Transportation		
<input type="checkbox"/> Conservation				

## STATEMENT OF SIGNIFICANCE

p. 4.

The Back Bay attains great historical importance in three areas:

1. as an example of ambitious and progressive city planning in the nineteenth century;
2. as a superb retrospective view of American architecture in the last half of the nineteenth century;
3. as a tangible reflection of the age when Boston was the cultural fountainhead of America.

Cultural

The Back Bay is the consummate physical manifestation of Boston in her intellectual and economic maturation. "In a word, it was in the Back Bay that Boston first established herself as one of the centers of world culture in the arts and sciences."<sup>1</sup> The original Museum of Fine Arts, the Boston Public Library, the Museum of Natural History, the Massachusetts Institute of Technology, and many of the city's famed clubs and private institutions settled here. Writers and philosophers—Oliver Wendell Holmes, William Dean Howells, George Santayana, Henry and William James, and many more of international renown—lived and worked in the Back Bay; and artists like John Singer Sargent, William Morris Hunt, and Henry Hobson Richardson are inseparably associated with it. Finally, the Back Bay was home for the rich and elite of the city. "Old Order" families and those but recently "arrived" made the Back Bay the center of city fashion and shared in their patronage of the artists and architects who created it. "The abode ... of legendary brahmins and ambitious Silas Laphams, the Back Bay has a thousand associations with American thought and action of the later nineteenth century. In brownstone and brick it symbolizes its epoch in a way that words and figures alone cannot."<sup>2</sup>

Back Bay Plan

Lewis Mumford has said, "Apart from L'Enfant's plan for Washington, the transformation of Boston's Back Bay is the outstanding achievement in American urban planning for the nineteenth century."<sup>3</sup> Originally a tidal backwash separating the Boston peninsula along its western border from the town of Brookline, the Back Bay was dammed and used intermittently but ineffectively through the first half of the nineteenth century for milling operations. The tidal flats were filled in a process that began in 1857 at Arlington St. and continued west until

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	Massachusetts	
COUNTY	Suffolk	
FOR NPS USE ONLY		
ENTRY NUMBER		DATE

(Number all entries)

8.—Significance (Cont.) Back Bay District p. 5.

the late 1880's, when all the marsh once separating Boston and Brookline had been reclaimed. With the creation of over four hundred fifty acres of dry, usable land, it was one of the largest land reclamations ever undertaken in America.

The new area was laid out as a fashionable residential district, the plan being executed by the architect Arthur Gilman in 1856. He had travelled in Europe and was certainly acquainted with Baron Haussmann's accomplishments in replanning and rebuilding portions of Paris. Gilman's design for the Back Bay is a reflection of the burgeoning American interest in French architecture and city planning. With Commonwealth Avenue as its spine (called by Mumford, "The first American boulevard actually to be built")<sup>4</sup> the Public Garden at its eastern boundary and Charlesgate at its western end, the Back Bay represents the first successful attempt in America at realizing the monumental effect of open spaces, grand boulevards, and imposing vistas, only possible in this kind of large scale city planning.

The cohesiveness of the plan was insured by a number of farsighted zoning and building restrictions, including mandatory building setbacks (20-25 ft. from the street curb), limiting of building heights, and confining of building materials to masonry and brick. In this way the often bewildering array of eclectic styles is unified and subordinated to a composition that emphasizes the block front and accentuates the uncluttered sweep of the Back Bay boulevards. Other original planning considerations designed to safeguard the area's residential character were the conscious exclusion of almost all business and other commercial facilities, and the assigning and occasional donating of chosen building lots for parks or public institutions. Copley Square and the block of Boylston St. on the north side between Berkeley and Clarendon Streets were early reserved for this purpose. Furthermore, the absolute definition of its boundaries, with parks at either extremity and a riverside esplanade bordering one side for its full length, insured a certain exclusiveness and safety from urban blight and commercial inroads that has certainly been a factor in the continuing importance of the Back Bay.

Recreation and park facilities for the district were also a prime consideration; the Boston Public Garden and the Commonwealth Avenue Mall still supply the same need as they did in the nineteenth century. In 1884 the Mall took on an added significance when it became the connecting link between the small downtown parks (the Common and the Garden) and the large rustic parks comprising the Fenway system, Olmstead's "Emerald Necklace".

The almost intact survival of the Back Bay district can be attributed to the number of wise, protective planning measures first implemented there. It has never lost its residential appeal nor suffered the urban blight that has marked comparable nineteenth century neighborhoods in other American cities. Today Back Bay buildings, even as apartments, retain their original appearance; and the plan remains, essentially unaltered.

**NATIONAL REGISTER OF HISTORIC PLACES**  
**INVENTORY - NOMINATION FORM**  
*(Continuation Sheet)*

STATE	
Massachusetts	
COUNTY	
Suffolk	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

(Number all entries)

8—Significance (Cont.)

Back Bay District

p. 6.

Back Bay Architecture

The Back Bay has been called "undoubtedly the finest zone of Victorian houses existing in America,"<sup>5</sup> an area whose buildings, "chart the course of architectural development for more than half a century."<sup>6</sup> Though of great stylistic variety, the buildings of the Back Bay reflect the conservative nature of Boston patrons in the reserved compositions of their facades. Architectural restraint was valued, thus there are few "outlandish" buildings in the area. Yet, though not often daring in design, Back Bay buildings are uniformly of excellent architectural character. Almost all were designed by accredited architects, and many were the works of the foremost practitioners of the time, including: Arthur Gilman, Gridley Bryant, H. H. Richardson, McKim, Mead, and White, Peabody and Stearns, and Richard Morris Hunt. The patronage of these architects by Back Bay clients is all the more significant when one "considers the leading position that Boston occupied as the educational and publication center for architecture in America during the period when the district was being built. The fashions established in the Back Bay were reflected, sooner or later, in other cities of the country."<sup>7</sup> Two Back Bay landmarks, Richardson's Trinity Church (1875) and McKim's Boston Public Library (1889), face one another across Copley Sq. and are perhaps the two most important and stylistically influential buildings designed in America after the Civil War. Each changed the course of American architectural taste in its generation.

Major Elements

Arlington Street Church (1859-1862, N.W. corner Arlington and Boylston Sts.) Designed by Arthur Gilman, the projector of the Back Bay plan, this Georgian-inspired Italianate church is one of the first harbingers of the Colonial Revival style in America. The parish, presided over for many years by the pioneer Unitarian and abolitionist William Ellery Channing, is considered the "Mother Church" of Unitarianism in America.

Emmanuel Church (1862, 1869, 15 Newbury Street) The first Gothic Revival church in the district, it was designed by A. P. Estey. The use of rough-faced Roxbury puddingstone for its walls helped popularize this material and made it one of the most fashionable building stones in the East during the last half of the nineteenth century.

First Parish Church (1867-1868, S.W. corner Marlborough and Berkeley Sts.) Founded in 1630, the First Church (now incorporating the Second Church of Boston as well) is one of the country's oldest. Their Back Bay house was designed by Ware and VanBrunt in a highly picturesque English Gothic Revival style. It burned in 1967, but the new church retains the original church spire and is a highly successful modern interpretation of the complex Gothic forms of the original. Designed by Paul Rudolph, the church is sympathetic in scale to surrounding nineteenth century buildings, and its reconstruction demonstrates the vitality of this district and the current concern with preserving the architectural character and skyline of the Back Bay.

**NATIONAL REGISTER OF HISTORIC PLACES**  
**INVENTORY - NOMINATION FORM**

(Continuation Sheet)

STATE	Massachusetts	
COUNTY	Berkfolk	
FOR NPS USE ONLY		
ENTRY NUMBER		DATE

(Number all entries)

## 8-Significance (Cont.)

Back Bay District

p. 7.

First Baptist Church (1871, S.W. corner Comm. Ave. and Clarendon St.)

Designed by H. H. Richardson, this building is on the National Register.

Trinity Church (1875-1877, Copley Square)

Also designed by H. H. Richardson, this church is a National Historic Landmark.

Old South Church (1874-1875, N. W. corner Dartmouth and Boylston Sts.)

Cummings and Sears designed this National Historic Landmark.

Museum of Natural History Building (1862, 234 Berkeley St.)

The Boston Society of Natural History, one of the earliest such societies in the country, was founded in 1830 and counted many eminent scientists, including the botanist and geologist, Louis Agassiz, among its members. The building is three stories, tri-partite in plan, and includes a rusticated brownstone basement supporting pressed brick walls and monumental pilasters of the same material in the upper two stories. The whole is capped with a full entablature, balustrade, and pediment. Designed by Wm. G. Preston, it is the most important mature example of the French Academic style in the Back Bay. When the society moved to the present Museum of Science, the building was happily converted to commercial use by Bonwit Teller's.

Boston Art Club Building (1881-1884, S. W. corner Newbury and Dartmouth Sts.)

Now a public high school, the Art Club building was designed by W. Ralph Emerson. It is one of the city's most outstanding examples of the Queen Anne style with its freely and assymetrically planned three story brick exterior, enlivened by picturesque window and gable treatments and decorated with ornate cut brick devices.

Algonquin Club (1887, 217 Comm. Ave.)

The Algonquin is one of Boston's most famous private clubs and occupies the most opulent clubhouse in the Back Bay. It was designed by Stanford White and has a five story limestone front, in the Renaissance Revival style. It is one of the earliest buildings in this stylistic mode, subsequently popularized throughout the country by the firm of McKim, Mead, and White. A projecting central entrance supports a two-story superposed porch flanked by octagonal bays. The upper stories are treated successively with smooth surfaced and ornately carved and panelled limestone bands.

Boston Public Library (1887-1895, Copley Square)

The Library, designed by McKim, Mead, and White, is on the National Register.

Hotel Vendome (1871, 1881, corner Dartmouth St. and Comm. Ave.)

The Vendome is the finest evocation of the Second Empire in the city.

Designed by Wm. G. Preston, it is a large six-story structure faced with Tuckahoe and Italian white marble and is stylistically reminiscent of French Renaissance architecture, though much of the facade is incised with elaborate, contemporary Neo-Grec detail. For decades the Vendome was Boston's premier hotel and hosted most of the notables who visited the city, including Ulysses Grant and Sarah Bernhardt. The electric lights installed here in 1882 were the first in the city. Despite a fire in 1972, the hotel

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	
Massachusetts	
COUNTY	
Suffolk	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

(Number of entries)

8-Significance (Cont.)

Back Bay District

p. 8.

retains its original facades and is currently undergoing conversion to apartments.

Copley Plaza Hotel (1910-1912, Copley Square)

Occupying the original site of the Museum of Fine Arts, the Copley Plaza was the later fashionable rival of the Vendome and is today the last of the great early Back Bay hotels still operating. Its design, attributed to Henry Hardenburgh (architect of the Plaza Hotel and the Dakota Apts. in N.Y.C.) employs a quattrocento Renaissance Revival facade with a massive but graceful swell front and flanking wings maneristically detailed in rusticated limestone blocks.

Berkeley Building (c. 1915, 420 Boylston St.)

The Berkeley building is one of the most beautiful commercial buildings in the city. It is six stories high with decorated white terra-cotta facades facing Boylston and Berkeley Streets. Though much of the detail is derived from fin de siècle Beaux Arts traditions, the influence of the Chicago School is evident in the facade's tripartite bay windows with large glass surfaces and in the emphasis of the vertical structural elements.

Major Elements- Domestic Architecture

No. 12 Arlington St. (1859-1860)

Designed by Arthur Gilman, this is the finest surviving mansion of those originally fronting the Public Garden and is one of the first houses erected in the Back Bay. It is a large, five story structure faced with Nova Scotia sandstone and designed in a traditional Franco-Italianate style. The stark detail of the facade contrasts with the richly carved Corinthian portico. The house was joined with no. 1 Comm. Ave. in 1893 when Mrs. J. Montgomery Sears, a Boston "Grande Dame" and patroness of the arts, found she needed more room for her growing collections. Visitors to no. 12 Arlington Street included the musicians Paderewski and Kreisler, Prince Henry of Prussia, and the artist, John Singer Sargent, who painted Mrs. Sears and her daughter in the house.

Nos. 326-328 Dartmouth St. and No. 165 Marlborough St. (1871)

This ensemble epitomizes the tendency of early Back Bay architects to combine separate houses into visually impressive "blocks". New building codes in the early 1870's did much to deter this practice. The three houses are built in the Academic Brick style with pressed brick walls and sandstone window and door enframements and are capped with Mansard roofs. Designed by Snell and Gregerson, they form a tripartite composition whose cohesion is further emphasized by the continuity of building materials and design elements.

No. 164 Marlborough Street (1870)

The Benjamin Crowninshield House is on the National Register

No. 233 Clarendon Street (1879)

Trinity Church Rectory is a National Historic Landmark.

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	Massachusetts	
COUNTY	Suffolk	
FOR NPS USE ONLY		
ENTRY NUMBER		DATE

(Number all entries)

8-Significance (Cont.) Back Bay District

p. 9.

No. 306 Dartmouth Street

Known as the Webster-Ames Mansion, and designed in the Academic Brick style, this is probably the finest house in the Back Bay. Its interior is exceptional, dating from an 1882 remodelling by the architect John Sturgis and containing lavishly decorated rooms with a palatial Great Hall measuring sixty-three feet long and eighteen feet high, panelled with highly carved oak woodwork. Other interior embellishments include a LaFarge stained glass skylight and a cloistered dome decorated with murals by Benjamin Constant. The house was built for Congressman Frederick Ames and was for many years, until recently, the home of Mrs. Edwin Webster.

No. 32 Hereford Street (1884)

This house is probably the earliest example of the Late Italian Renaissance Revival in America. It was designed for John Andrew by the firm of McKim, Mead, and White and was their first Back Bay commission. Though the basic parti of the house shows strong Queen Anne influence, the facade is a calm composition of brown brick with limestone trim and simple but classically correct detail. Intricate French ironwork balconies appear on the windows of the piano nobile and above the Palladian window of the entrance.

No. 355 Commonwealth Avenue (1882)

The Ames Mansion, built for Governor Oliver Ames from designs of Carl Fehmer, occupies half the block of Mass. Ave. between Marlborough St. and Commonwealth Ave., and is the largest house in the Back Bay. It is designed in the Chateauesque style and the detailing of its brownstone facade incorporates design elements from the concurrent Queen Anne style into the basic configuration of a sixteenth century French chateau. It is second only to the house at 306 Dartmouth St.. built by Oliver's brother, in the magnificence of its interiors. Today the National Casket Co. maintains the interiors in perfect condition.

No. 314 Commonwealth Avenue (1899)

Charles Brigham designed this elaborate massing of picturesque towers and gables in the Chateauesque manner for Col. Albert Burrage. The limestone facade rises four and one half stories and is laden with deeply undercut French Gothic and early Renaissance ornament, most notably along the gabled and turreted cornice and at the Commonwealth Avenue entrance. The Burrage Mansion's exuberance of form and detail is unique in the Back Bay, where Boston patrons were more attracted to the conservative brick facades and subdued ornament that the majority of buildings here display. However, the Burrage mansion symbolized the change in attitude toward architectural styles which occurred at the end of the century. From then until the end of private town house building in the Back Bay, c. 1915, the range of styles employed was much larger and more diverse than it had been in the nineteenth century.

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY - NOMINATION FORM

(Type all entries - complete applicable sections)

STATE	Massachusetts
COUNTY	Suffolk
FOR NPS USE ONLY	
ENTRY DATE	

1. NAME  
 COMMON  
 Boston Public Library  
 AND OR HISTORIC

2. LOCATION  
 STREET AND NUMBER  
 Copley Square  
 CITY OR TOWN:  
 Boston  
 STATE  
 Massachusetts

		CONGRESSIONAL DISTRICT #9	
CODE	COUNTY	CODE	
025	Suffolk	025	

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP		STATUS	ACCESSIBLE TO THE PUBLIC
<input type="checkbox"/> District <input checked="" type="checkbox"/> Building	<input checked="" type="checkbox"/> Public	<input type="checkbox"/> Private	<input checked="" type="checkbox"/> Occupied	<input type="checkbox"/> Yes: <input checked="" type="checkbox"/> Restricted
<input type="checkbox"/> Site <input type="checkbox"/> Structure	<input type="checkbox"/> Both	<input type="checkbox"/> Both	<input type="checkbox"/> Unoccupied	<input type="checkbox"/> Unrestricted
<input type="checkbox"/> Object			<input type="checkbox"/> Preservation work in progress	<input type="checkbox"/> No

PRESENT USE (Check One or More as Appropriate)

<input type="checkbox"/> Agricultural	<input type="checkbox"/> Government	<input type="checkbox"/> Park	<input type="checkbox"/> Transportation	<input type="checkbox"/> Comments
<input type="checkbox"/> Commercial	<input type="checkbox"/> Industrial	<input type="checkbox"/> Private Residence	<input type="checkbox"/> Other (Specify)	
<input checked="" type="checkbox"/> Educational	<input type="checkbox"/> Military	<input type="checkbox"/> Religious		
<input type="checkbox"/> Entertainment	<input type="checkbox"/> Museum	<input type="checkbox"/> Scientific		

library

4. OWNER OF PROPERTY

OWNER'S NAME: City of Boston	STREET AND NUMBER: City Hall	STATE: Boston	CODE: Massachusetts
			025

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC: Suffolk Registry of Deeds	STREET AND NUMBER: Pemberton Square	STATE: Boston	CODE: Massachusetts
			025

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY Inventory of Historic Assets	DATE OF SURVEY: 1972	<input type="checkbox"/> Federal	<input checked="" type="checkbox"/> State	<input type="checkbox"/> County	<input type="checkbox"/> Local
DEPOSITORY FOR SURVEY RECORDS Massachusetts Historical Commission					
STREET AND NUMBER: 40 Beacon Street	STATE: Boston	CODE: Massachusetts			
		025			

## DESCRIPTION

(Check One)

Excellent     Good     Fair     Deteriorated     Ruins     Unexcised

[Check One]

Altered     Unaltered

(Check One)

Moved     Original Site

EXCERPT FROM THE NATIONAL REGISTER OF HISTORIC PLACES (if known) PHYSICAL APPEARANCE

The Boston Public Library, facing northeast on Copley Square in the Back Bay, was designed by Charles Follen McKim and built during the years 1888-1895. A new addition to the Library building adjoining its southwestern elevation opened in late 1972. Forming the southwestern boundary of the Square, one of Boston's major open spaces and transportation crossroads, the Library has among its neighbors two National Historic Landmarks: H. H. Richardson's 1877 Trinity Church and the New Old South Church of 1874 by Cummings and Sears. The Copley-Plaza Hotel by Henry J. Hardenbergh of 1913 and I. M. Pei & Partners' not yet completed John Hancock Mutual Life Insurance Co. tower both border Copley Square on the southeast.

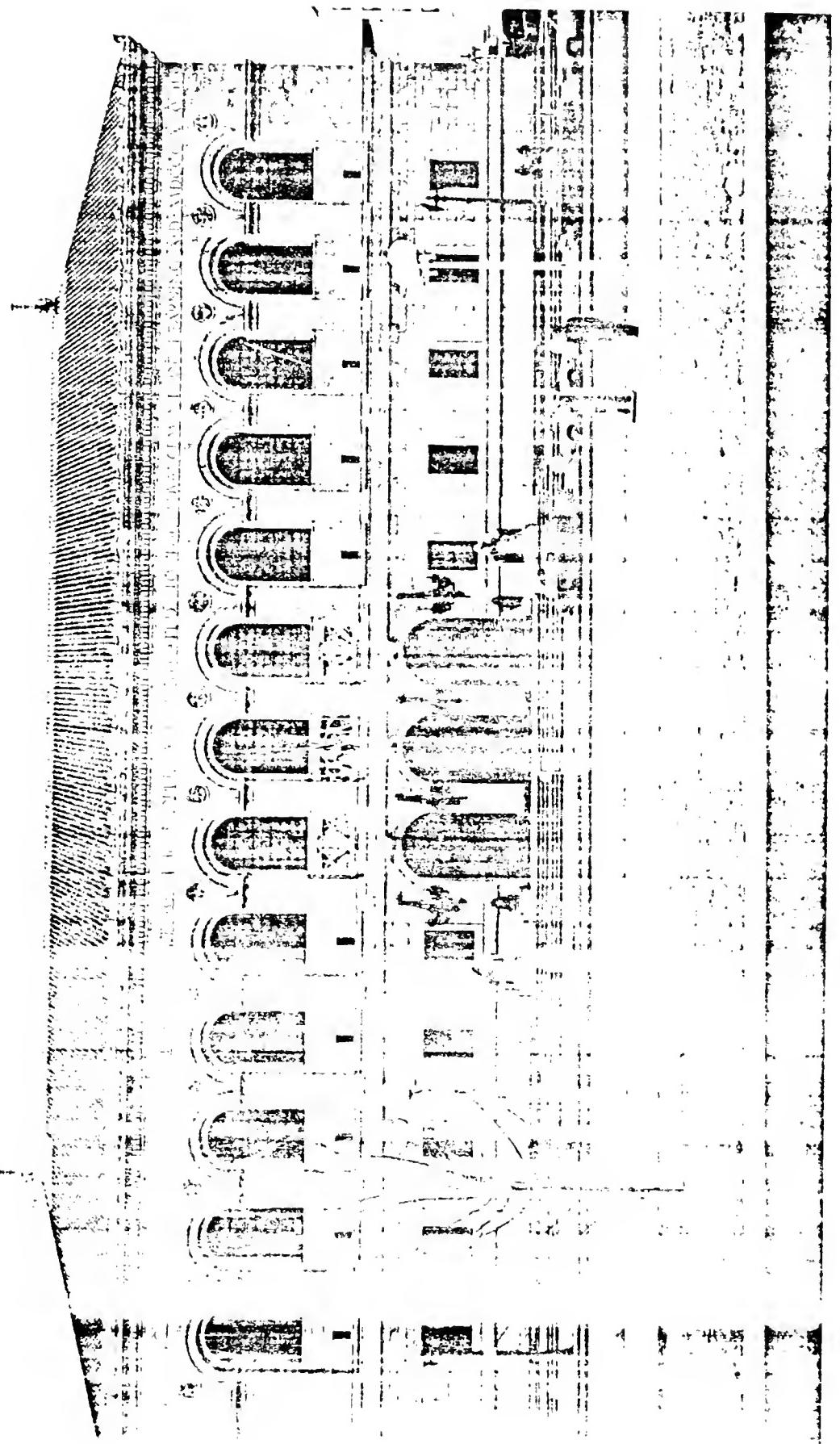
McKim's design for the Boston Public Library consists of a monumental free-standing block in the style of an Italian Renaissance palace. Nearly square in plan (225 feet in length across the front, 227 feet in width), the building surrounds an open courtyard and contains three stories. The Library measures 70 feet high at its cornice. It is set up and back from the surrounding streets on a granite platform of broad, easy steps. The exterior walls of the building are entirely of Milford granite. A wide band of rustication at the first story level is separated from the smoothly finished wall of the second story by a series of courses. Decorative details have also been carved of granite, most notably the 33 medallions in the spandrels of the second floor window arches. These were executed by sculptor Domingo Mora and represent the colophons, or trade devices, of the early printers and booksellers. On three sides friezes identifying the Library, its purposes and dates, lie just below a richly detailed cornice which projects outward from the sweep of flat wall. Elaborate copper cresting completes the cornice silhouette. Similar cresting once adorned the roof ridge but suffered damage and was removed. The low hipped roof is covered with reddish brown Spanish tiles. At each corner of the ridge stands an ornamental copper rod.

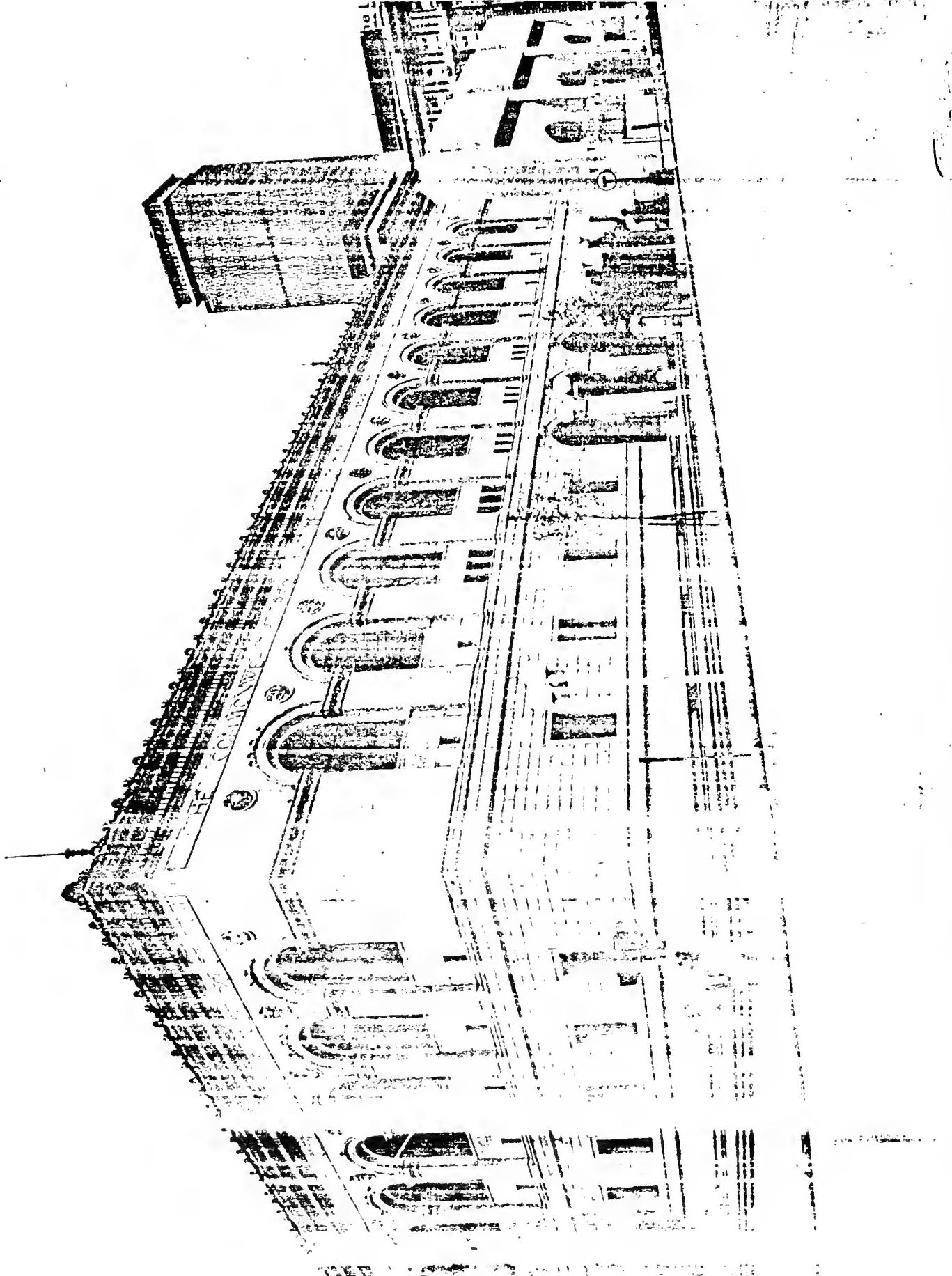
The walls are divided into bays formed by the arcade of the second story: thirteen bays extend across the Copley Square facade, eleven in the northwest (Boylston Street) side and twelve on the southeast (Blagden Street) side. On the first floor the rectangular windows have single panes enframed by simple architraves. Each is centered beneath one of the second story arches. In comparison to this stark fenestration, the second story windows are recessed in the arches that use ornamental detail such as coffered/molding. Black iron mullions form a faceted pattern on the glass. These windows are also wider and taller than those on the first floor, indicating on the exterior the difference in importance in the interior arrangements of the two floors. Tablets recessed within the arches beneath the windows are inscribed with the names of the masters of art, science, religion and statesmanship.

The arch motif is repeated at the main entrance on Copley Square and in what was once a public entry on the Boylston Street side. These entries consist of triple arcades on axis with the central three bays of each elevation. Above the main entrance three panels set beneath the second floor windows carry the seals of the Commonwealth of Massachusetts, the Library, and the City of Boston, sculpted by Augustus Saint-Gaudens from designs by Kenyon Cox (a noted illustrator). Four handsome large branched wrought-iron candelabra carrying clusters of six lanterns each are set in the spandrels of the main entrance arches. Similar craftsmanship is found in the heavy iron gates used to close the entrances and in the unique little subway kiosk, also of wrought iron, built in 1914 by Boston architects Fox and Gale a few feet in

SEE INSTRUCTIONS

[continuation sheet]





## NATIONAL REGISTER OF HISTORIC PLACES

## PROPERTY PHOTOGRAPH FORM

(Type all entries - attach to or enclose with photograph)

## 1. NAME

COMMON

Boston Public Library

AND/OR HISTORIC

NUMERIC CODE (Assigned by NPS)

## 2. LOCATION

STATE

Massachusetts

COUNTY

Suffolk

TOWN

Boston

STREET AND NUMBER

Copley Square

## 3. PHOTO REFERENCE

PHOTO CREDIT

Boston Public Library

DATE

1973

NEGATIVE FILED AT

Boston Public Library

## 4. IDENTIFICATION

DESCRIBE VIEW, DIRECTION, ETC

Copley Square facade of the Boston Public Library

[facing northeast]

GPO 932-009

UNITED STATES DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE

## NATIONAL REGISTER OF HISTORIC PLACES

## PROPERTY PHOTOGRAPH FORM

(Type all entries - attach to or enclose with photograph)

## 1. NAME

COMMON

Boston Public Library

AND/OR HISTORIC

NUMERIC CODE (Assigned by NPS)

## 2. LOCATION

STATE

Massachusetts

COUNTY

Suffolk

TOWN

Boston

STREET AND NUMBER

Copley Square

## 3. PHOTO REFERENCE

PHOTO CREDIT

Boston Public Library

DATE

1972

NEGATIVE FILED AT

Boston Public Library

## 4. IDENTIFICATION

DESCRIBE VIEW, DIRECTION, ETC

Boylston Street elevation of the Boston Public Library, including the new Library building

[facing northwest]

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY - NOMINATION FORM

(Continuation Sheet) #1

STATE <b>Massachusetts</b>	COUNTY <b>Suffolk</b>
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

*(continuation sheet)*Boston Public Library, 7. Description:

front of the Boylston Street entrance. Two large bronze statues of "Art" and "Science" by Bela Pratt were added to the platform in front of the main entrance in 1912. The marble blocks in which the heroic-sized female figures are seated are inscribed with names of great men in art and science.

The Library structure surrounds an open courtyard, measuring 100 by 135 feet. The wall of the main staircase projects well into the court and an arcaded loggia runs along the other three walls. Landscaping and a rectangular pool complete this setting.

Much as a Renaissance artist might have done, McKim and his partners also sought out the contributions of their contemporary artists for the visual enrichment of the building's interior spaces and surfaces. The French muralist Puvis de Chavannes' major composition is the fresco found in the second floor corridor and entire upper portion of the main stair hall. This classical allegory is entitled "The Muses of Inspiration Hail the Spirit, the Harbinger of Light." To the right of the Chavannes Gallery is the Abbey Room dominated by a series of richly-colored mural paintings depicting the "Quest of the Holy Grail," by the American artist Edwin Austin Abbey.

Bates Hall, the Library's massive main reading room, with its 50 foot high barrel-vaulted ceiling, occupies the whole front of the building on the second floor. The necessity of providing this room with sufficient light led McKim to devise the solution of the second story window arcade.

Sargent Gallery, on the third floor, takes its name from the American artist John Singer Sargent, who, beginning in 1890, spent years decorating its walls with his most ambitious and original mural sequence, "Judaism and Christianity." Sargent's incomplete masterpiece gives the Gallery a dramatic environment of dark, rich tones, heavily accented in gold.

Among important works of sculpture within the building are the bronze statue of Sir Henry Vane, a Cavalier and youthful Governor of the Massachusetts Bay Colony in 1636-1637, by Frederick MacMonnies, and the great twin marble lions, couchant, on pedestals at the turn of the main staircase, which were carved by Louis Saint-Gaudens, brother of Augustus. The three pairs of bronze doors leading to the main entrance hall contain allegorical figures sculpted in low relief representing Music and Poetry, Knowledge and Wisdom, and Truth and Romance. These doors were executed by Daniel Chester French in 1894 at a cost of \$25,000.

The new Boston Public Library building was designed by the New York architect Philip Johnson and construction on it was begun in June, 1969. Although it is an addition to and connects with the 1895 Library on the northeast, the new edifice deserves consideration as an important building on its own terms. Monumental in volume and scale, it is similar in size to the original McKim-designed Library and is a self-contained block with a strictly symmetrical elevation. The cornice, roof pitch and ridge line are compatible with these features in the old building. Like the original, it has an exterior facing of Milford granite (the quarry was reopened to provide the stone for this purpose) and black metal accents are used once again in the window and door mullions. Thick supporting piers divide each elevation into three bays. And the arch motif has once more been put to use in mezzanine-level lunettes that continue the rhythm of McKim's triple-arched doorways and second story window arcade. Slot-shaped windows in the recessed horizontal bands above the lunettes reveal the location

[continuation sheet]

**NATIONAL REGISTER OF HISTORIC PLACES**  
**INVENTORY - NOMINATION FORM**

(Continuation Sheet) #2

STATE Massachusetts	COUNTY Suffolk
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

*(Not all entries)***Boston Public Library, 7. Description:**

of perimeter offices. Except for the public entrance in the center bay of the Boylston Street side, the remainder of the ground level wall surface consists of large windows set deep within the piers and screened from the street by rectangular granite slabs set on end just inches apart. In contrast with the old Library, surface ornamentation in the addition has been kept to a minimum, enabling the play of light and shadow on the walls' projecting and receding planes to make its own decorative statement.

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY - NOMINATION FORM

(Continuation Sheet) #3

STATE	Massachusetts	
COUNTY	Suffolk	
FOR NPS USE ONLY		
ENTRY NUMBER	DATE	

(Answer all questions)

Boston Public Library, 8. Significance:

the Boston Public Library represents, in the words of Walter Muir Whitehill, "a marriage of the arts hardly to be matched elsewhere in nineteenth century American architecture."<sup>1</sup> The exterior of the building and its interior public spaces remain virtually unaltered.

In the Boston Public Library addition Philip Johnson has attempted to supplement the spatial inadequacies of the earlier building's extravagant plan, which a turn-of-the century library had termed "haughtily ignorant of utility." The new structure succeeds in providing the functional features suited to present-day library needs.

As an institution, the Boston Public Library occupies a major position in the history of the American public library movement. It was founded by an act of the Massachusetts legislature in 1848, which was the first statute ever passed authorizing the establishment and maintenance of a public library as a municipal institution supported by taxation. The first annual report of the Library's Trustees in 1852 setting forth what a library ought to be quickly became the basic statement of principles for the public library movement. The Boston Public Library opened to the public in 1854, borrowing two rooms in a Mason Street schoolhouse. New quarters on Boylston Street were built and occupied by 1858, but these were soon outgrown, leading the Trustees to commission the present edifice on lands facing Copley Square granted for this purpose by the Commonwealth of Massachusetts in 1880. The cornerstone was laid on November 28, 1888, with civic officials and Library Trustees in attendance; a poem was written for the occasion and read by Dr. Oliver Wendell Holmes. The building finally opened to the public on March 11, 1895.

Additional distinction lies in the unusual range and depth of the Library's scholarly collections. And among the librarians who have directed the Boston Public Library have been such leaders of the profession as Justin Winsor (during the years 1868-77), eminent bibliographer and historian and later the librarian of Harvard University; and Herbert Putnam (from 1895-99), who subsequently served for forty years as head of the Library of Congress.

The Boston Public Library has recently been certified as a Massachusetts Historic Landmark.

<sup>1</sup> Walter Muir Whitehill, "Making of an Architectural Masterpiece--The Boston Public Library," in American Art Journal, Vol. II, No. 2, p. 13.

## 8. SIGNIFICANCE

## PERIOD (Check One or More as Appropriate)

- |  |  |  |  |
|--|--|--|--|
| <input type="checkbox"/> Pre-Columbian | <input checked="" type="checkbox"/> 16th Century | <input checked="" type="checkbox"/> 18th Century | <input checked="" type="checkbox"/> 20th Century |
| <input type="checkbox"/> 15th Century  | <input type="checkbox"/> 17th Century            | <input checked="" type="checkbox"/> 19th Century |  |

SPECIFIC DATE(S) (If Applicable and Known) 1888-95; 1969-72

## AREA(S) OF SIGNIFICANCE (Check One or More as Appropriate)

- |  |   |   |   |
|--|---|---|---|
| Aboriginal                                       | <input checked="" type="checkbox"/> Education | <input type="checkbox"/> Political            | Urban Planning                                      |
| <input type="checkbox"/> Prehistoric             | <input type="checkbox"/> Engineering          | <input type="checkbox"/> Religion Phi.        | <input checked="" type="checkbox"/> Other (Specify) |
| <input type="checkbox"/> Historic                | <input type="checkbox"/> Industry             | <input type="checkbox"/> Isosphy              | the public library                                  |
| <input type="checkbox"/> Agriculture             | <input type="checkbox"/> Invention            | <input type="checkbox"/> Science              | movement  |
| <input checked="" type="checkbox"/> Architecture | <input type="checkbox"/> Landscape            | <input checked="" type="checkbox"/> Sculpture |   |
| <input checked="" type="checkbox"/> Art          | <input type="checkbox"/> Architecture         | <input type="checkbox"/> Social Human-        |   |
| <input type="checkbox"/> Commerce                | <input type="checkbox"/> Literature           | <input type="checkbox"/> itarian              |   |
| <input type="checkbox"/> Communications          | <input type="checkbox"/> Military             | <input type="checkbox"/> Theater              |   |
| <input type="checkbox"/> Conservation            | <input type="checkbox"/> Music                | <input type="checkbox"/> Transportation       |   |

## STATEMENT OF SIGNIFICANCE

The Boston Public Library was the first of the great urban public library structures in the United States. It was also one of the first monumental public buildings executed in the Second Renaissance Revival style and is probably the most famous, establishing the prototype for many other library designs that followed in the next twenty years. Charles Follen McKim (1847-1909), the architect, became one of the most honored members of his profession and served on numerous boards and commissions that determined the appearance of public buildings throughout the country. He designed many of these with his partners from 1879 to 1906, Stanford White and William Rutherford Mead, and the Boston Public Library constitutes their principal public building of the late 1880's.

The site of the Boston Public Library is important in that it forms the southwestern boundary of Copley Square, the present (and former) location of several institutions significant to the religious, cultural and commercial life of Back Bay Boston. McKim recognized the importance of the site and of the civic function the Library would perform on it. Accordingly, he made his plans on a scale unprecedented in American library design. He took his cue for this from the expansive spirit of late nineteenth century Boston--a metropolis vigorous enough to undertake the large-scale (450 acres) filling of the Back Bay, thereby creating by 1870 the very land on which to erect the Library. Both the severely simple outline of the building and its regular arcuated fenestration emphasize the horizontal lines of the surrounding streets and present an effective contrast to the irregular vertical masses of both New Old South Church and Trinity Church, neighbors on Copley Square. Likewise, the Library's envelope of creamy Milford granite is a dramatic accent to the more picturesque use of brick and brownstone in the Square's earlier buildings. Recent incursions, such as the nearly completed Hancock tower, point to the Square's continued importance as a center of civic activity.

The Boston Public Library plan consists of a rectangular block surrounding an open courtyard. The predominant feature of the plan, largely derived from the designs of Henri Labrouste for the Bibliothèque Ste.-Genéviève in Paris of 1843-50, is the great hall extending across the entire Copley Square front on the second floor.

In addition to providing the building's architectural design, the partnership arranged for extensive artistic collaboration in its decoration. McKim, Mead and White made every effort to cooperate with the artists, even to the point of constructing 1/4-scale wooden mock-ups of the walls for their use. Major mural sequences were executed by painters John Singer Sargent, Edwin Austin Abbey and Puvis de Chavannes. Among the sculptors represented were Daniel Chester French, the Saint-Gaudens brothers, Augustus and Louis, and Frederick MacMonnies. [The specific contribution of each to the Library has been pointed out in #7.] Indeed,

[continued]

## 9. MAJOR BIBLIOGRAPHICAL DIFFERENCES

- Bacon, Edwin, ed. and Richard Herndon, Boston of To-day: A Glance At Its History and Characteristics. Boston, Post Publishing Co., 1892.
- Moore, Charles, The Life and Times of Charles Follen McKim. Boston, Houghton, Mifflin Co., 1929, pp. 62-94.
- W. Hin, Horace G., Jr., The Public Library of the City of Boston: A History. Boston, 1911.
- Whitehill, Walter Muir, Boston Public Library, A Centennial History. Cambridge, Mass., The Belknap Press of Harvard University Press, 1956.
- "Making of an Architectural Masterpiece--The Boston Public Library," in American Art Journal, Vol. II, No. 2, pp. 13-35.

## 10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY			LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES		
CORNER	LATITUDE	LONGITUDE	O R	LATITUDE	LONGITUDE
NW	Degrees Minutes Seconds	Degrees Minutes Seconds		Degrees Minutes Seconds	Degrees Minutes Seconds
NE	°     '     "	°     '     "		42°     20'     57"	71°     04'     44"
SE	°     '     "	°     '     "			
SW	°     '     "	°     '     "			

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: c. 5 acres

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE
STATE	CODE	COUNTY	CODE

## 11. FORM PREPARED BY

NAME AND TITLE:

Andréa K. Calfee, Consultant

ORGANIZATION

Massachusetts Historical Commission

DATE

11/20/72

STREET AND NUMBER:

40 Beacon Street

CITY OR TOWN:

Boston

STATE

Massachusetts

CODE

025

## 12. STATE LIAISON OFFICER CERTIFICATION

## NATIONAL REGISTER VERIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

I hereby certify that this property is included in the National Register

Director, Office of Archeology and Historic Preservation

Date \_\_\_\_\_

ATTEST:

Keeper of The National Register

Date \_\_\_\_\_

National  State  Local   


Name \_\_\_\_\_  
 Secretary of the Commonwealth and  
 Chairman, Massachusetts Historical  
 Title \_\_\_\_\_ Commission

Date February 21, 1973

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY - NOMINATION FORM

(Type all entries - complete applicable sections)

STATE:	Massachusetts	
COUNTY:	Suffolk	
FOR NPS USE ONLY		
ENTRY NUMBER	DATE	

## 1. NAME

COMMON:

South End District

AND/OR HISTORIC:

## 2. LOCATION 9th Congressional District and 5th Congressional District

STREET AND NUMBER:

CITY OR TOWN:

Boston

STATE

Massachusetts

CODE

025

COUNTY

Suffolk

CODE

025

## 3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP		STATUS	ACCESSIBLE TO THE PUBLIC
<input checked="" type="checkbox"/> District <input type="checkbox"/> Building	<input type="checkbox"/> Public	Public Acquisition:	<input checked="" type="checkbox"/> Occupied	<input type="checkbox"/> Yes: <input checked="" type="checkbox"/> Restricted
<input type="checkbox"/> Site <input type="checkbox"/> Structure	<input type="checkbox"/> Private	<input type="checkbox"/> In Process	<input checked="" type="checkbox"/> Unoccupied	<input checked="" type="checkbox"/> Unrestricted
<input type="checkbox"/> Object	<input checked="" type="checkbox"/> Both	<input type="checkbox"/> Being Considered	<input type="checkbox"/> Preservation work in progress	<input type="checkbox"/> No

PRESENT USE (Check One or More as Appropriate)

<input type="checkbox"/> Agricultural	<input type="checkbox"/> Government	<input checked="" type="checkbox"/> Park	<input type="checkbox"/> Transportation	<input type="checkbox"/> Commons
<input checked="" type="checkbox"/> Commercial	<input type="checkbox"/> Industrial	<input checked="" type="checkbox"/> Private Residence	<input type="checkbox"/> Other (Specify) _____	_____
<input checked="" type="checkbox"/> Educational	<input type="checkbox"/> Military	<input checked="" type="checkbox"/> Religious	_____	_____
<input checked="" type="checkbox"/> Entertainment	<input type="checkbox"/> Museum	<input type="checkbox"/> Scientific	_____	_____

## 4. OWNER OF PROPERTY

OWNER'S NAME:

Public and Private

STREET AND NUMBER:

CITY OR TOWN:

Boston

STATE:

Massachusetts

CODE

025

STATE:  
Massachusetts  
COUNTRY:  
Suffolk

## 5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC:

Registry of Deeds

STREET AND NUMBER:

Suffolk County Courthouse

CITY OR TOWN:

Boston

STATE

Massachusetts

CODE

025

COUNTRY:  
Suffolk

## 6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY:

Photographic Building Survey of the South End

DATE OF SURVEY Fall 1971 to Summer 1972 Federal  State  County  Local

DEPOSITORY FOR SURVEY RECORDS

South End Historical Society

STREET AND NUMBER:

15 Concord Sq.

CITY OR TOWN:

Boston

STATE

Massachusetts

CODE

025

ENTRY NUMBER  
FOR NPS USE ONLY  
DATE

## 7. DESCRIPTION

CONDITION	<input checked="" type="checkbox"/> Excellent	<input type="checkbox"/> Good	<input type="checkbox"/> Fair	<input checked="" type="checkbox"/> Deteriorated	<input type="checkbox"/> Ruins	<input type="checkbox"/> Unexposed
	(Check One)			(Check One)		(Check One)
	<input checked="" type="checkbox"/> Altered	<input checked="" type="checkbox"/> Unaltered			<input type="checkbox"/> Moved	<input checked="" type="checkbox"/> Original Site

## DESCRIBE THE PRESENT AND ORIGINAL (If Known) PHYSICAL APPEARANCE

The South End district of 238 acres includes the property within a line running along the east side of Yarmouth St., the north side of Columbus Ave., the southwest side of the Mass. Turnpike, the alley line of Berkely St., extended, the north side of Tremont St., alley 705 - east of Dwight St., the back lot line of properties on the south side of Shawmut Ave.; the east side of Milford St., the back lot line of properties facing on the south side of Bradford St., the back lot line of properties on the east side of Waltham St., the midline of Washington St., the midline of Union park St., the mid-line of Harrison Avenue, the midline of Malden St., the east-side of Pelham St., the east side of Drapers Lane, the alley (also known as Ivanhoe St.) south of Tremont St.. the west side of Pembroke St., the south side of Newland St., the east side of East Brookline St., alley 710 extended, the alley line west of Newton St., the south side of Harrison Ave., Trask St., extended, Comet St. extended, the back lot lines of the west side of Chester Park, the east side of Northampton St., the back lot lines of the south side of Tremont St., the east side of Northfield St., the north side of Tremont St., the east side of Camden St., the back lot line of the north side of Columbus Ave., the back lot line of the west side of Mass. Ave., the Penn Central railroad tracks, to the east side of Yarmouth St.

The South End is a large but well-defined, densely built up area which is characterized by architecture of relatively few building types. It presents a unified environment distinguished by subtle variations in architectural style, detailing, building height, and street width and direction, and by the presence or absence of park areas.

The principal streets passing through the South End, such as Harrison, Shawmut and Tremont, run roughly parallel to each other and to Washington St., the early route through the original neck of marshland connecting Boston to mainland Roxbury. Most of the minor streets were laid out perpendicularly in a grid pattern in relation to these broad avenues. However, Columbus Avenue and the other later streets introduce new diagonals and breaks in the street pattern which reflect an attempt to mesh the South End pattern with that of the later Back Bay.

On these streets, there are two predominant residential building types. The more numerous of these two building types is the double basement, bow fronted rowhouse with mansard roof. Most often constructed of brick, the type of house was occasionally faced with brownstone. The second predominant building type is a low basement, flat fronted rowhouse faced with brick, often adorned by a projecting oriel.

Within these building types, a variety of architectural styles were used. The predominant style is the Italianate, characterized by high basements sometimes rusticated, elaborately carved double doors, a hood with undercut consoles, and a projecting cornice with carved wooden brackets. Other influences include Greek Revival, Renaissance Revival, Second Empire, and a Transitional style between Greek Revival and Italianate.

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	Massachusetts	
COUNTY	Suffolk	
FOR NPS USE ONLY		
ENTRY NUMBER	DATE	

(Number all entries) 7. Description

MAJOR ELEMENTS

1. Union Park is an enclosed urban square of double basement, red brick rowhouses overlooking an oblong park landscaped with two fountains. Most of the houses have bow fronts, and many have the older ridge roofs that were supplanted by the mansard roofs in the South End. The end houses step forward to emphasize the curve of the park and the roadway which frames it; the environment has a strong sense of closure between Tremont on the north and Shawmut on the south. Architectural detailing is often lavish, including decorative heads for keystones and opulent cartouches for window lintels. Ornamental ironwork is used as stair rails, as fences to enclose private gardens, and as imitative balconies on the parlor floor. With the exception of altered dormers on a number of structures, and the loss of some original doors and ironwork, Union Park retains most of its original appearance.

2. Worcester Square is built up entirely of double basement, bow fronted, mansard roofed rowhouses in the Italianate style. The end houses are brought forward to enclose the square. The axes of the park within the square terminate at Shawmut on the north and Harrison Avenue on the south. In the nineteenth century, the latter terminus was the original Boston City Hospital building; the present terminus is a twentieth century administration building. At the Washington St. entrance is the imposing Italianate brownstone residence known as the Allen House (see below). Alterations to the houses of the square include the removal of three front stoops, the alteration of doorways, and the rebuilding of dormers.

3. As originally developed, Chester Square, between Tremont St. and Shawmut Avenue, was the most grand of the urban residential squares. Framed by roadways, the very large central park was landscaped lavishly. The seventy townhouses most successfully emphasize the oblong form of the park by a combination of flat fronted central buildings and stepped forward, bow fronted buildings at the curved ends. Although mostly Italianate in style, the houses reveal Gothic and Moorish influences in the ornamentation.

Alterations to the houses of the Square include the removal of two front stoops, the alteration of doorways, the loss of ironwork, and the addition of two shopfronts. The most drastic alteration has been to the parkland; in the early 1950's a traffic artery was cut through the park, leaving two narrow rhomboid parks on either side.

4. Blackstone and Franklin Squares are the only residential parks which are actually square in shape. Unlike the other squares, these two city blocks divided by Washington St. are surrounded by a variety of building forms. The parks are laid out in a formal manner with paths extending diagonally across the parks centering on a freestanding copper fountain. The green spaces of Blackstone and Franklin Squares are used today as a parkland. A play ground area has been added to one portion of Blackstone Square.

## NATIONAL REGISTER OF HISTORIC PLACES

## INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	
Massachusetts	
COUNTY	
Suffolk	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

(Number all entries) 7. Description

5. Concord and Rutland Squares are better defined as linear rather than enclosed spaces. The parks themselves are small and do not require the buildings to step forward around a curve. These houses are Italianate in style, bow fronted, and high basemented in most cases.

6. Cyclorama (see separate submission)

## SECONDARY ELEMENTS

7. At the Washington St. entrance to Worcester Square stands the Allen House, a brick symmetrical Italian palazzo or villa-type structure. Although built as a freestanding mansion on a corner lot, the house has a brick side wall clearly intended as a party wall. The two street facades are surfaced in brownstone and are highly ornamented with motifs unusual to architecture but similar to those used in furniture of the period. A trademark of the house is the French mansard roof which is gable ended to crown a central bay on each facade. In 1894, a brick rear wing with five large window bays was added. Other alterations of late include the addition of a temporary structure framed out from the basement and the removal of a third story platform cupola.

8. Franklin Square House is one of the variety of buildings facing Franklin Square. Built of brick in the Second Empire style, the symmetrical building has a characteristically French mansard roof, a rusticated basement, a prominent central pavillion, and guoins.

9. The churches of the South End which are notable for their architecture or location or both, include:

a. The Cathedral of the Holy Cross at Washington St. and Union Park St. was designed by Patrick C. Keeley and dedicated in 1875. A Gothic Revival structure in Roxbury puddingstone trimmed with granite, the church is over 360 feet in length, which is comparable to many major European cathedrals. The spires intended for two square towers on the Wahsington St. front were never completed. The structure remains in good condition.

b. Another P. C. Keeley design, the Church of the Immaculate Conception, was dedicated at its site at Harrison Ave. and East Concord St. in 1861. White New Hampshire granite accentuates the Classic Revival styling.

c. The Tremont Street Methodist Church, 740 Tremont ST., was designed in Gothic Revival style in Roxbury puddingstone by Hammat Billings. The dedication was 1862.

d. Constructed in 1872, the High Victorian Gothic structure of Roxbury puddingstone at 485 Columbus is the Union Methodist Church.

e. Of brick with brownstone trim, the Romanesque Rivival styled Shawmut Congregational Church, 640 Tremont St., was dedicated in 1872.

f. Italianate in style and constructed of red brick in 1868, the Peoples Baptist Church is distinguished by having a

Paul Revere Bell in its tower.

SOUTH END DISTRICT

- 
1. Union Park
  2. Worcester Square
  3. Chester Park
  4. Blackstone and Franklin Squares
  5. Rutland and Concord Squares
  6. Cyclorama
  7. Allen House
  8. Franklin Square House

## 3. SIGNIFICANCE

## PERIOD (Check One or More as Appropriate)

- Pre-Columbian       16th Century       18th Century  
 15th Century       17th Century       19th Century       20th Century

## SPECIFIC DATE(S) (If Applicable and Known)

## AREAS OF SIGNIFICANCE (Check One or More as Appropriate)

- |  |   |   |  |
|--|---|---|--|
| Aboriginal                                       | <input type="checkbox"/> Education            | <input type="checkbox"/> Political                | <input checked="" type="checkbox"/> Urban Planning |
| <input type="checkbox"/> Prehistoric             | <input type="checkbox"/> Engineering          | <input type="checkbox"/> Religion/Phi.<br>losophy | <input type="checkbox"/> Other (Specify)<br>_____  |
| <input type="checkbox"/> Historic                | <input type="checkbox"/> Industry             | <input type="checkbox"/> Science                  | _____  |
| <input type="checkbox"/> Agriculture             | <input type="checkbox"/> Invention            | <input type="checkbox"/> Sculpture                | _____  |
| <input checked="" type="checkbox"/> Architecture | <input checked="" type="checkbox"/> Landscape | <input type="checkbox"/> Socio/Human-<br>itarian  | _____  |
| <input type="checkbox"/> Art                     | <input type="checkbox"/> Literature           | <input type="checkbox"/> Theater                  | _____  |
| <input type="checkbox"/> Commerce                | <input type="checkbox"/> Military             | <input type="checkbox"/> Transportation           | _____  |
| <input type="checkbox"/> Communications          | <input type="checkbox"/> Music                |   |  |
| <input type="checkbox"/> Conservation            |   |   |  |

## STATEMENT OF SIGNIFICANCE

Planned in 1848 and developed in part on filled land through the early 1870's, the South End of Boston is the largest remaining Victorian urban residential neighborhood in the United States. Seeking to provide a fashionable district of "substantial dwellings", the city auctioned the land of the South End with restrictions on height, material, setback, building form and construction period. These lands were mostly purchased by real estate entrepreneurs who eventually sold completed dwelling catering to the tastes expected markets of businessmen and industrialists. As a result of this speculative construction controlled by the city's specifications, the South End is characterized by an unusually high degree of architectural homogeneity and coherence. The houses of the South End represent the "genteel" architectural taste of the Victorian era - occasionally flamboyant in ornamentation but respectably conservative in plan and elevation.

This architecture did attract as was hoped, the successful businessmen and manufacturers; however, when those Boston families of great wealth settled into the High Victorian houses of the Back Bay some twenty years after the South End plan, those buyers who could afford a second move followed. To their places in the South End came the working class and immigrant population. The later development of more modest houses and apartment buildings reflected this change. It is significant, however, that despite the rapid turn-over in population, the architectural environment of the South End remained of high quality and greatly cohesive, as can be seen in the surrounding streets lined with four story brick rowhouses of uniform set back.

## MAJOR ELEMENTS

The foci of the South End are the urban squares of brick or brownstone row houses surrounding oblong parks. The squares reflect the appreciation of the English park system in the urban planning of Boston, extending back to Charles Bulfinch's design for the Tontine Crescent. The South End represents the last vestiges of the concept in Boston.

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY - NOMINATION FORM

(Continuation Sheet)

STATE	Massachusetts
COUNTY	Suffolk
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

(Number all entries)

8. Significance

1. The first square to be completed (1857-59), Union Park's grand scale made it one of Boston's most prestigious addresses for a time. The eventual building of the Cathedral of the Holy Cross on the axes of the park give to the square a notable vista.

2. The most cohesive and uniform of the South End squares, Worcester Square is also significant for its relationship to the Allen House (see below) at the entrance on Washington St. and to the Boston City Hospital at the terminus on Harrison Ave.

3. Chester Square, built between 1850 to mid-1860's epitomizes the height of architectural taste in mid-nineteenth century Boston. The townhouses of this, the largest of South End squares, are of a similar type to other South End residential structures, but are more grand and opulent in size and ornamentation. As a group, they show the most variety in style influences.

4. Although completed after Union Park, Blackstone and Franklin Squares were actually the first to be conceived. In 1801, Charles Bulfinch, as chairman of the Selectman, presented a plan for a "Columbia Square"-four streets of houses facing an oblong lawn split by Washington St. Franklin and Blackstone Squares deviates only slightly from this plan.

5. Styled after the larger squares. Concord and Rutland Squares, were developed during the 1860's. Less pretentious and smaller in size, they reveal the changing hopes for the South End.

SECONDARY ELEMENTS

6. Cyclorama (see separate submission)

7. Unlike most South End houses which were built on speculation, the Allen House was built in 1859 for the resident owner. The fact that Aaron Allen was a prominent furniture dealer illuminates the origins of certain exterior ornamental motifs. The conversion of the house from a single family dwelling to a clubhouse, upon Allen's move to the Back Bay symbolizes the social changes of the district. Unusual in the homogeneous architectural fabric of the South End, the mansion commands an important position at the entrance to Worcester Square.

8. Completed in 1868 by M.M. Ballou, the St. James Hotel, as the Franklin Square House was originally named, was prestigious enough to attract the patronage of President U.S. Grant. It later became the home of the famed New England Conservatory of Music. Visually prominent among the smaller residential buildings, it defines one edge of Franklin Square.

9. The South End has been traditionally known for the large number of religious institutions serving the district. Because of the many Irish immigrants, the Roman Catholic Cathedral of Boston settled in the district supporting the congregation of the Church of the Immaculate Conception, whose Jesuit order founded Boston College. A considerable number of the Protestant churches founded elsewhere in nineteenth century Boston relocated to the South End with their

NATIONAL REGISTER OF HISTORIC PLACES

INVENTORY - NOMINATION FORM

*(Continuation Sheet)*

STATE	Massachusetts	
COUNTY	Suffolk	
FOR NPS USE ONLY		
ENTRY NUMBER	DATE	

*(Number all entries)*

8. Significance

congregations. Included among these congregations was that of the African Baptist Church of Joy St. which played an important role in the Abolitionist movement. This congregation was located in the People's Baptist Church, formerly St. Paul's Baptist Church. Through the years, the religious structures have housed congregations of all faiths. Architecturally, these churches provide focal points along the major avenues and contribute a variation of form, style, and color to the residential blocks.

## 9. MAJOR BIBLIOGRAPHICAL REFERENCES

1. Boston Almanac, 1852
2. Firey, Walter-Land Use in Central Boston-Cambridge 1957
3. King, Moses-King's Handbook of Boston-Boston 1878
4. King, Moses-King's Dictionary-1883
5. Rettig, Robert Bell-"1682 Washington St. & Boston's South End"-Unpublished seminar report, Harvard University, 1963. Copy in Boston Athenaeum.
6. Shurtleff, N.B.-A Topographical & Historical Description of Boston, Mass. 3rd. Edition, Boston 1891.
7. Wolfe, Albert B.-The Lodging House Problem in Boston-Cambridge 1913

## 10. GEOGRAPHICAL DATA

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY			LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES		
CORNER	LATITUDE	LONGITUDE	O R	LATITUDE	LONGITUDE
NW	Degrees Minutes Seconds 42 ° 20 .57.78	Degrees Minutes Seconds 71 ° 04 26.51		Degrees Minutes Seconds 0 ° . . .	Degrees Minutes Seconds ° . . .
NE	Degrees Minutes Seconds 42 ° 20 .35.43	Degrees Minutes Seconds 71 ° 03 53.11			
SE	Degrees Minutes Seconds 42 ° 20 .02.59	Degrees Minutes Seconds 71 ° 04 33.68			
SW	Degrees Minutes Seconds 42 ° 20 .24.64	Degrees Minutes Seconds 71 ° 05 06.82			

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: 238

## LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE

## 11. FORM PREPARED BY

## NAME AND TITLE:

Marcia Myers, Deborah Gott-lin

## ORGANIZATION

Boston Landmarks Commission

## DATE

February 1973

## STREET AND NUMBER:

Boston City Hall

## CITY OR TOWN:

Boston

## STATE

Massachusetts

## CODE

025

## 12. STATE LIAISON OFFICER CERTIFICATION

## NATIONAL REGISTER VERIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

National  State  Local 

Name \_\_\_\_\_

Title \_\_\_\_\_

Date \_\_\_\_\_

I hereby certify that this property is included in the National Register.

Chief, Office of Archeology and Historic Preservation

Date \_\_\_\_\_

ATTEST:

Keeper of The National Register

Date \_\_\_\_\_

NATIONAL REGISTER OF HISTORIC PLACES  
INVENTORY - NOMINATION FORM

(Type all entries - complete applicable sections)

STATE:	
Massachusetts	
COUNTY:	
Suffolk	
FOR NPS USE ONLY	
ENTRY NUMBER	DATE

## 1. NAME

COMMON:

Trinity Church

AND/OR HISTORIC:

## 2. LOCATION

STREET AND NUMBER:

Copley Square

CITY OR TOWN:

Boston

STATE

Massachusetts

CODE

20

COUNTY

Suffolk

CODE

025

## 3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP			STATUS	ACCESSIBLE TO THE PUBLIC
District <input type="checkbox"/> Building <input checked="" type="checkbox"/> Public	<input type="checkbox"/>	Public Acquisition:	<input type="checkbox"/>	Occupied <input checked="" type="checkbox"/>	Yes: <input type="checkbox"/>
Site <input type="checkbox"/> Structure <input type="checkbox"/> Private	<input type="checkbox"/>	In Process	<input type="checkbox"/>	Unoccupied <input type="checkbox"/>	Restricted <input checked="" type="checkbox"/>
Object <input type="checkbox"/> Both	<input type="checkbox"/>	Being Considered	<input type="checkbox"/>	Preservation work <input type="checkbox"/>	Unrestricted <input type="checkbox"/>
				in progress <input type="checkbox"/>	No: <input type="checkbox"/>

PRESENT USE (Check One or More as Appropriate)

Agricultural <input type="checkbox"/>	Government <input type="checkbox"/>	Park <input type="checkbox"/>	Transportation <input type="checkbox"/>	Comments <input type="checkbox"/>
Commercial <input type="checkbox"/>	Industrial <input type="checkbox"/>	Private Residence <input type="checkbox"/>	Other (Specify) <input type="checkbox"/>	<input type="checkbox"/>
Educational <input type="checkbox"/>	Military <input type="checkbox"/>	Religious <input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Entertainment <input type="checkbox"/>	Museum <input type="checkbox"/>	Scientific <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 4. OWNER OF PROPERTY

OWNER'S NAME:

Trinity Church

STREET AND NUMBER:

Copley Square

CITY OR TOWN:

Boston

STATE:

Massachusetts

CODE

20

STATE:  
Boston

## 5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC.:

Suffolk County Registry of Deeds

STREET AND NUMBER:

Pemberton Square

CITY OR TOWN:

Boston

STATE:

Massachusetts

CODE

20

STATE:  
County:  
Suffolk

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: 1.04

## 6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY:

Inventory of the Historical Assets of the Commonwealth of Massachusetts

DATE OF SURVEY: 1968

Federal State County Local 

DEPOSITORY FOR SURVEY RECORDS:

Massachusetts Historical Commission

STREET AND NUMBER:

Office of the Secretary of the Commonwealth, State House

CITY OR TOWN:

Boston

STATE:

Massachusetts

CODE

20

FOR NPS USE ONLY  
ENTRY NUMBER DATE

## 7. DESCRIPTION

CONDITION	Excellent <input checked="" type="checkbox"/>	Good <input type="checkbox"/>	Fair <input type="checkbox"/>	Deteriorated <input type="checkbox"/>	Ruins <input type="checkbox"/>	Unexposed <input type="checkbox"/>
INTEGRITY	Altered <input type="checkbox"/>	Unaltered <input checked="" type="checkbox"/>		Moved <input type="checkbox"/>	Original Site <input checked="" type="checkbox"/>	

## DESCRIBE THE PRESENT AND ORIGINAL (If known) PHYSICAL APPEARANCE

Located on Copley Square, in the Back Bay, Trinity Church faces Northwest from one end of the Square. The Boston Public Library (1895, by McKim, Mead and White) faces it from the opposite end of the trapezoidal "Square". The New Old South Church (1875, by Cummings and Sears), and the Sheraton Plaza (Copley Plaza) Hotel (1913, by Henry J. Hardenbergh), are other notable buildings on the Square.

Trinity consists of a cruciform church, with a parish house to the left rear. The parish house is joined to the church by a colonnaded cloister. The primary building material is Dedham granite with decorative details of Longmeadow freestone. The roofs are covered with material of several textures and colors. On the front, or Copley Square, facade, the cruciform is obscured by a porch and connected towers.

The entire mass is dominated by the central tower of the church, 211 feet and 3 inches from the ground to the top of its finial. Although derived from the tower of the Old Cathedral at Salamanca, the Trinity tower is square with corner turrets, only the roof being octagonal. In writing about the tower, Richardson said that "Instead of the tower being an inconvenient and unnecessary addition to the Church, it was itself made the main feature. The struggle for precedence, which often takes place between a Church and its spire, was disposed of, by at once and completely subordinating nave, transepts, and apse, and grouping them about the tower as the central mass."<sup>1</sup>

With the closing of Huntington Avenue, which ran at an angle in front of Trinity Church, and the execution of the new design for Copley Square, the Church will become a part of the Square, physically located within it. Thus Clarendon Street, behind the Church, now defines the new Eastern limit of the Square, and Trinity becomes its actual focal point.

1. Wardens and Vestry, Consecration Services of Trinity Church, Boston, Vestry, Boston, 1877. Page 69.

## S E E I N S T R U C T I O N S

PERIODS OF DESIGN: Check One or More as Applicable			
Pre-Columbian	1st Century	2nd Century	3rd Century
15th Century	17th Century	19th Century	20th Century
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
SPECIFIC CATEGORIES: Add and/or Other Known			
AREAS OF DESIGN PRACTICE: Check One or More as Applicable			
Architect	Education	Health	Urban Planning
Bricklayer	Engineering	Geologic Eng.	Other Specialty
Builder	Housing	Healthcare	
Agriculture	Industrial	Science	
Law	Landscape	Social Work	
Commerce	Archaeology	Social Welfare	
Communications	Entertainment	Tourism	
Conservation	W. Art	Theater	
	Museums	Transportation	

## STATEMENT OF DESIGN PRACTICE: Complete Paragraphs Dates Events Etc

Built between 1874-77, Trinity Church is considered by many to be Henry Hobson Richardson's greatest work. A Romanesque tour de force, Trinity probably went further than any other building of its era in establishing a style and as architect. It established both so well that Richardsonian has become a synonym for Romanesque.

The commission to design Trinity was won in Competition in 1872. Six firms were invited to compete: Sturgis and Brigham, Ware and Van Brunt, Peabody and Stearns, Richard Morris Hunt, William A. Poulter, and Gambrill and Richardson. Richardson's design was chosen, but for various reasons, including modifications in the design and the acquisition of additional land, construction did not start until 1874.

Trinity was built during the pastorate of Phillips Brooks, who later became Bishop of the Protestant Episcopal Diocese of Massachusetts. A popular orator and writer, Brooks gained a wide reputation as author of the hymn "O Little Town of Bethlehem." It was a logical development that his church should follow others from downtown Boston into the Back Bay, which, in the 1870's, was becoming Boston's prestige address.

Located on a triangular lot, Trinity Church is bounded by Clarendon Street to the rear, and by St. James Avenue and Huntington Avenue (now discontinued) on the sides. Though the Back Bay had been laid out with regard to ceremonial open spaces, Copley Square was not isolated as such. It was not until 1883, 11 years after Richardson won the competition for Trinity, that the building lots in the Square were publicly acquired, and its retention as open space was assured. It was not until 1895, with the completion of McKim, Mead and White's Boston Public Library, that the present character of the Square was set, with two monumental buildings facing each other. In 1923 the City of Boston moved to develop the Square. With a competition for a design commensurate with its architectural, social and educational importance.

The porch across the Copley Square front of Trinity, as well as the tops of the two towers behind it, are the works of Shapley, Putnam and Coolidge, completed in 1917. Richardson had designed Trinity to face on a street, Huntington Avenue, and not across an open square. His successors were, therefore, designing for a different purpose and the work is distinctly theirs, not Richardson's, except in the manner in which it followed his general concepts.

(continued)

During the Winter of 1870-71 John La Farge executed the murals which add color to the interior of the Church. Much of the stained glass is also his.

TRINITY RECTOR,  
1870

---

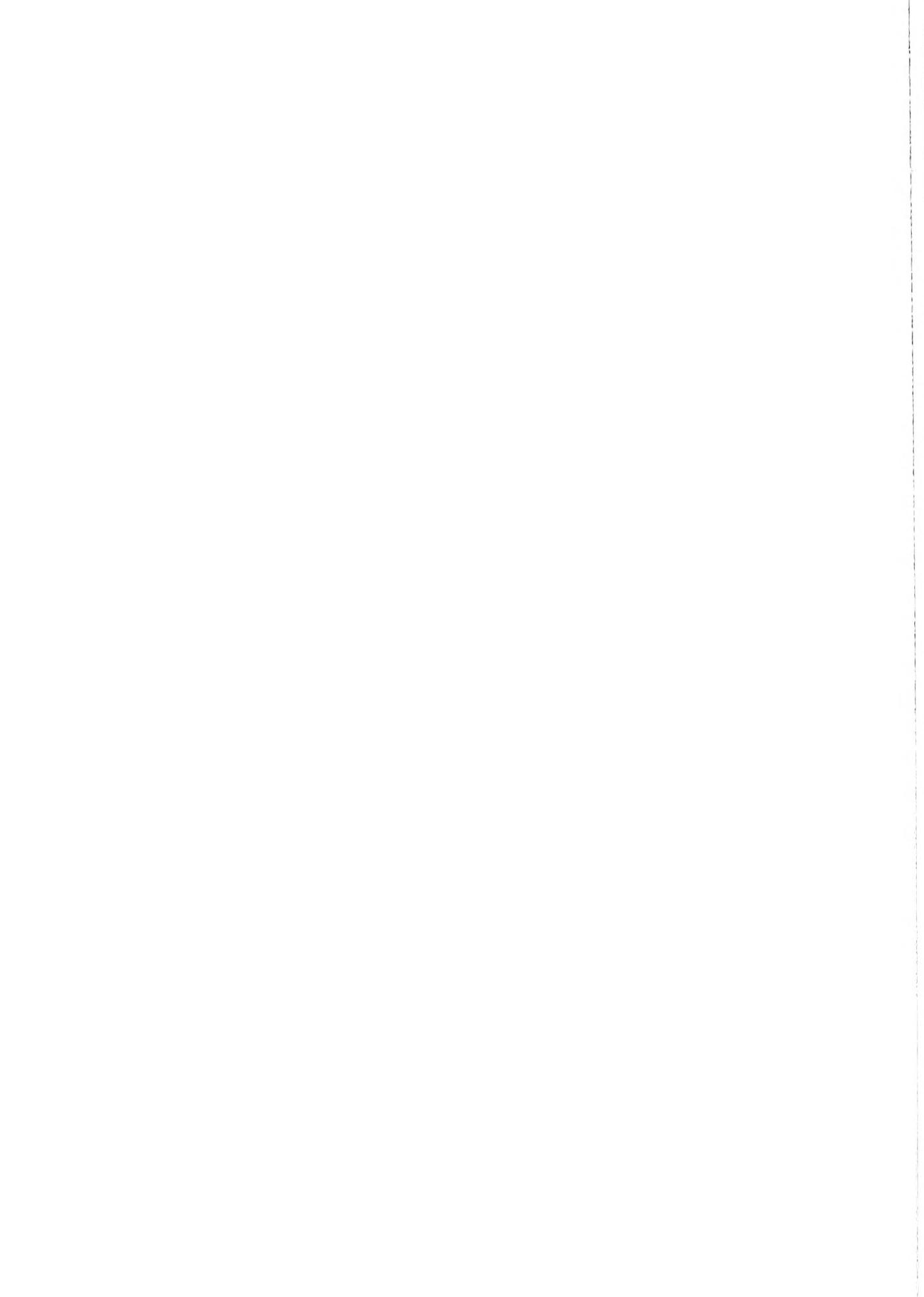
STATEMENT OF SIGNIFICANCE

The Rectory of Trinity Church in Boston is the work of Henry Hobson Richardson, considered the first grand architect to work in a truly national idiom. This red brick townhouse is typical of the architect's American, or Richardsonian Romanesque style. The Rectory is the first in a series of excellent houses built by Richardson in the 1870's and, according to Professor Bainbridge Bunting, it is 'certainly the best of Richardson's Back Bay dwellings.'

As the result of a competition, Richardson was chosen architect for Trinity Church, on which work began in 1870. The current rector of Trinity Church was Phillips Brooks. Most often remembered for his carol, "O Little Town of Bethlehem," Brooks was also one of the great clergymen of his day and later became sixth Bishop of Massachusetts. During the building of the Church, he and the architect formed a close friendship, and in 1879, two years after the completion of Trinity Church, Richardson was given the commission for Brooks' new residence, the Trinity Rectory.



APPENDIX E  
SOIL BORING DATA



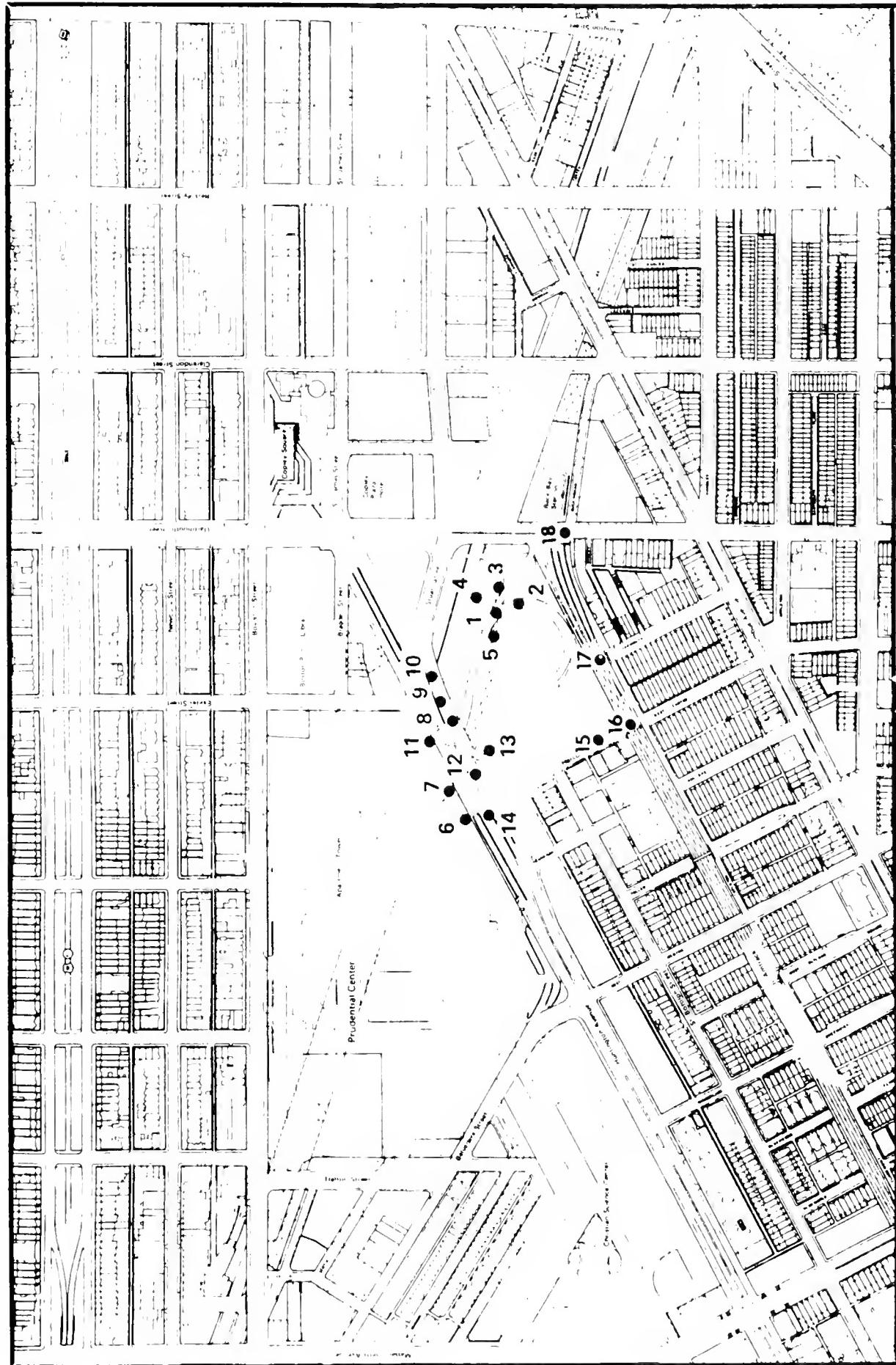


FIGURE 6.9-1 - LOCATIONS OF SOIL BORINGS

Boring No. 1

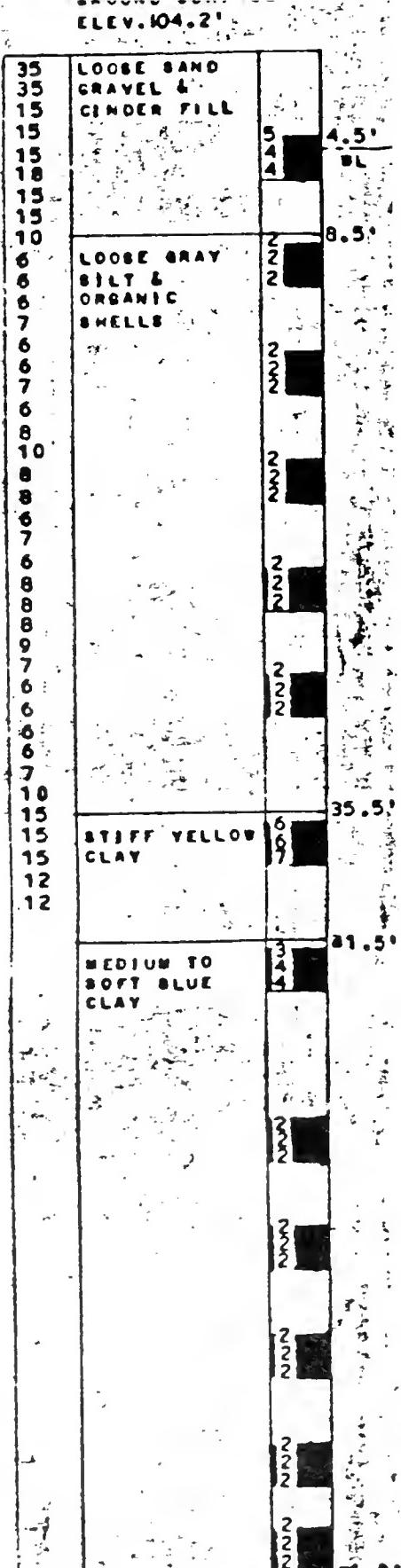
1

GROUND SURFACE  
ELEV. 104.0'

LOOSE SAND GRAVEL & CINDER FILL	3 4 4	4.5° BL
LOOSE BRAY SILT & ORGANIC - SHELLS	2 2 2	9.0°
	3 2 2	
	1 2 2	
	1 2 2	
STIFF YELLOW CLAY	6 7	34.5°
MEDIUM TO SOFT BLUE CLAY	2 3 3	41.5°
	2 2 2	
	2 2 2	
	2 2 2	

L. RONAN  
5/24/62

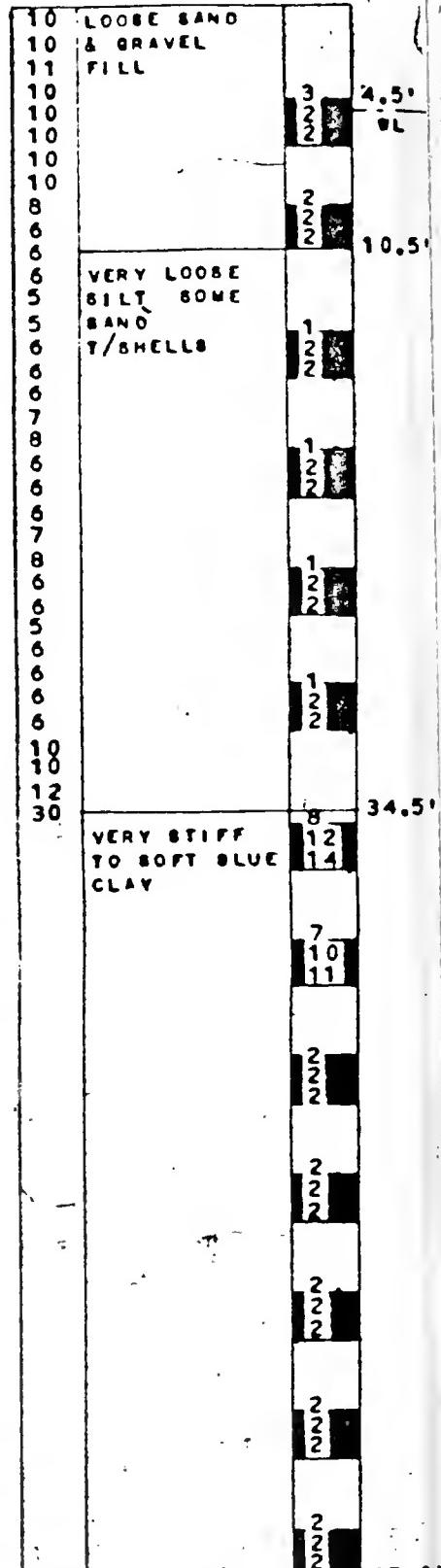
TATION 521494.7  
FFRET R 75.4



L. RONAN  
5/25/62

STATION 522 + 44.9  
OFFSET R 79.7

GROUND SURFACE  
ELEV. 103.5'



24 HOUR BL 4.5'  
L. RONAN  
6/25/62

STATION 523 + 27.5.  
OFFSET R 56.6

Boring No. (5)

GROUND SURFACE  
ELEV. 105.0'

Boring No. (4)

GROUND SURFACE  
ELEV. 101.9'

15	HARD SAND	
20	GRAVEL &	
22	CRUSHED	
61	STONE FILL	
59		
60		
62		
58	FIRM FINE TO	10
50	COARSE GRAY	9
50	SAND & GRAVEL	10
10	LOOSE DARK	2
12	GRAY SILT	3
12	SAND &	
10	T/SHELLS	
9		2
9		3
8		3
9		
10		
10		2
10		2
13		2
14		
12		
12		2
16		2
15		2
15		
14		
14		2
20		2
25		2
30		2
33	VERY STIFF	10
34	TO MEDIUM	16
40	LIGHT GRAY	
35	CLAY	
29		
29		
28		
29		
35		4
35		4
32		4
31		
33		3
30		4
28		4
24		
25		
28		2
28		2
27		3
27		
27		
27		
30		2
35		3
37		3
38		
40		
49		
50		
55		

(4) cont.

62			
67			
61			
50			
52			
53			
52			
60			
68			
71			
72			
75			
85			
82			
87			
165	COMPACT FINE	17	
300	TO COARSE	20	
380	SAND GRAVEL	35	
401	& CLAY		
301			
330			
450	ORED 2' BLDG		
450	6' RECOVERY		
		83.0	
			89.0

T. HUNT  
4/28/63

STATION 522 75.4  
OFFSET 1.61

NOTE: BENT CASING  
DRIVING THROUGH  
CORED BOULDER &  
STOPPED BORING.

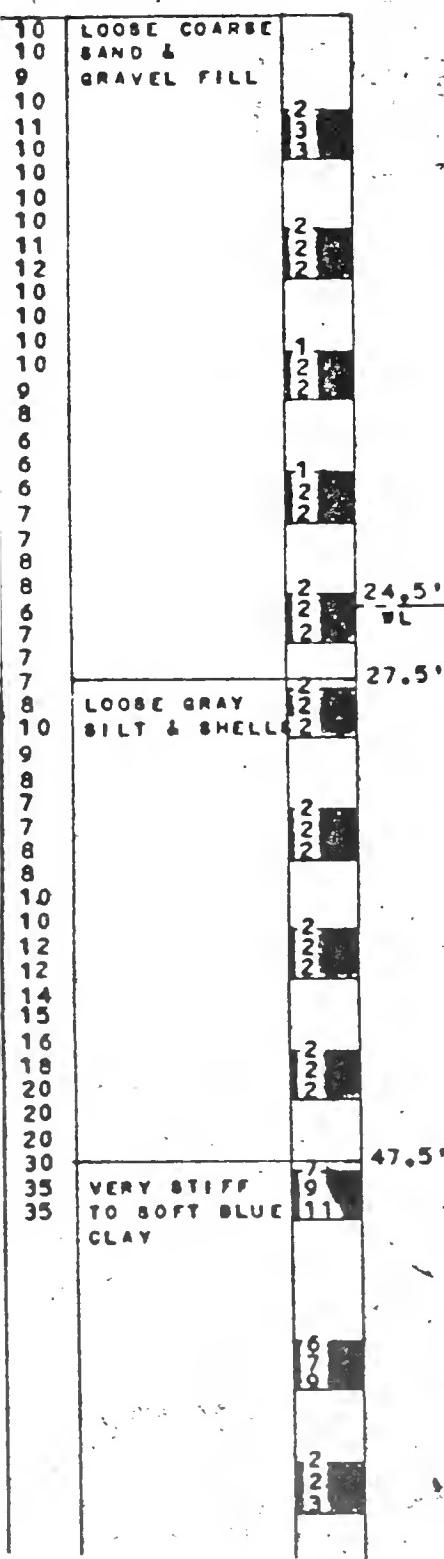
L. RON HANSON  
5/31/62

STATION 520 + 96.2  
OFFSET R 104.1

NOTE: CONCRETE ON  
ENGRAVED SURFACE

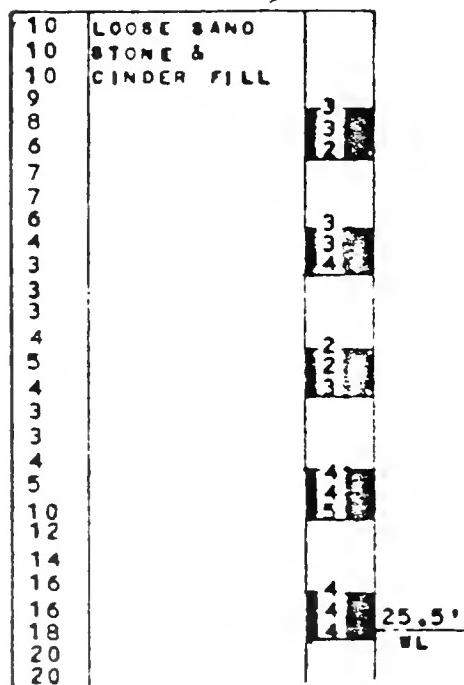
Boring No. (6)

GROUND SURFACE  
ELEV. 121.7'



Boring No (7)

GROUND SURFACE  
ELEV. 121.0'



⑦ cont.

LOOSE GRAY  
SILT SAND &  
T/SHELLS

VERY STIFF  
TO SOFT BLUE  
CLAY

⑥ cont.

L. RONAN  
6/7/62  
STATION 518 + 14.1  
OFFSET E 104.3  
NOTE: CONCRETE ON  
SURFACE TO 0'-4"

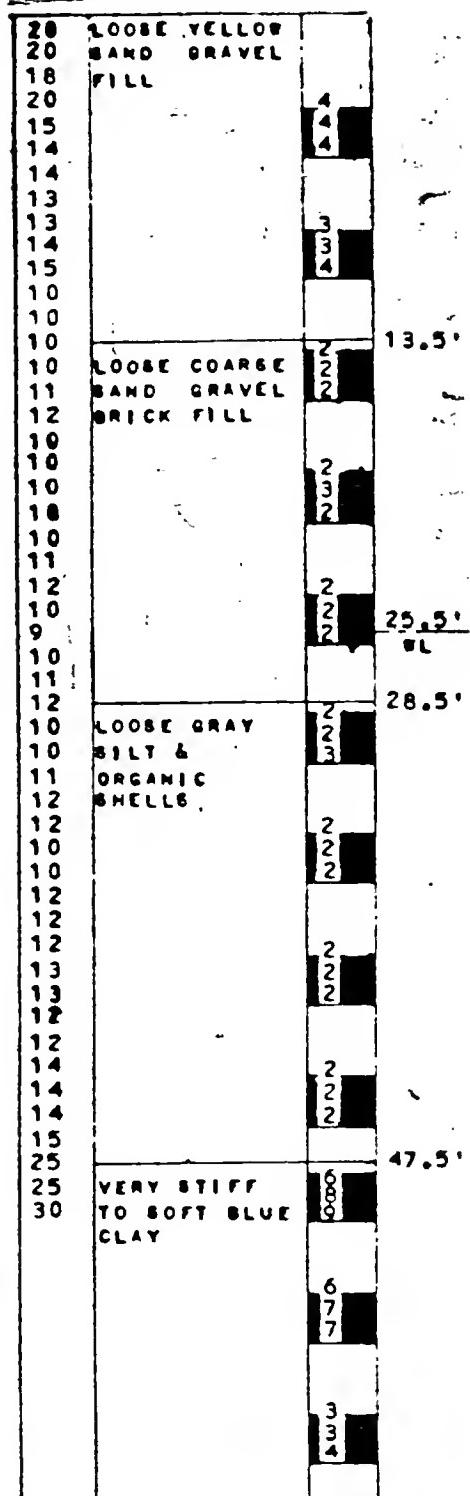
L. RONAN  
6/11/62

STATION 518 + 60.3  
OFFSET L 134.3

NOTE: CONCRETE ON  
SURFACE TO 0'-4"

Boring No. (8)

GROUND SURFACE  
ELEV. 120.6



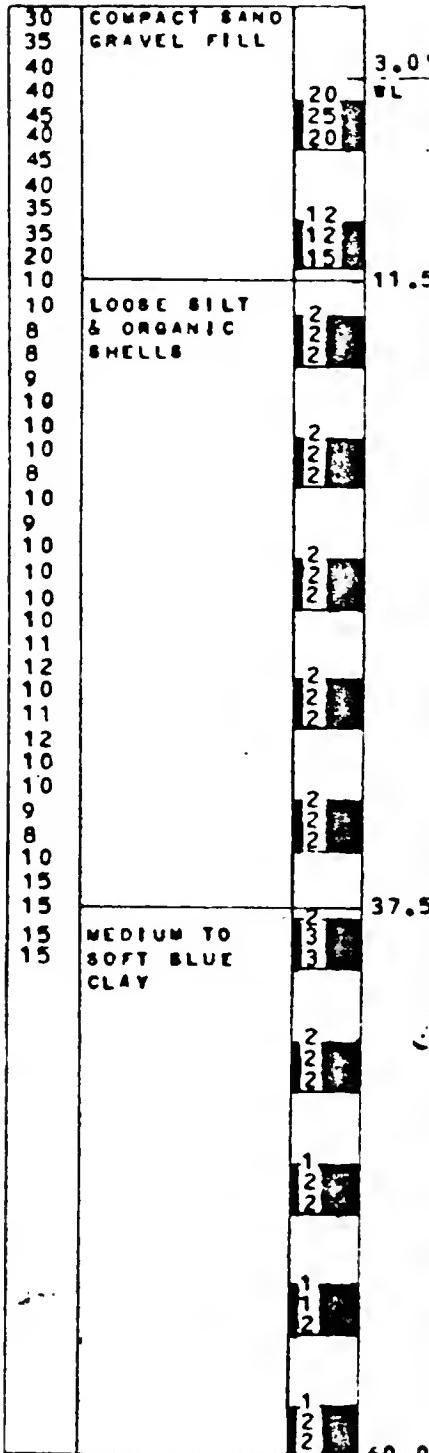
L. RONAN  
5/28/62

STATION 517+97.1  
OFFSET R130.7

**NOTE: CONCRETE ON  
SURFACE TO 0'-3"**

Boring No.

GROUND SURFACE  
ELEV. 102.8'



L. RONAN  
5/22/62

STATION 518 + 95.4  
OFFSET R 28.5

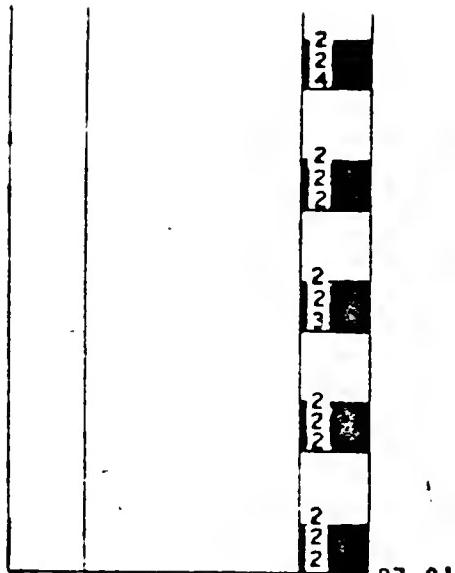
Boring No.

10

GROUND SURFACE  
ELEV. 123.3'

6	LOOSE FINE	
8	TO COARSE	
4	SAND GRAVEL	
4	& ASH FILL	
5		3
8		3
8		3
6		
6	LOOSE FINE	12
10	TO COARSE	10.0*
10	SAND GRAVEL	
9	BRICK WOOD	
10	& MISC. FILL	
10		2
12		2
14		5
7		
16		3
18		2
30		4
20		
16		
10	VERY LOOSE	1
12	FINE TO	25.0*
15	COARSE SAND	
15	GRAVEL &	
10	BRICK FILL	
5	VERY LOOSE	1
6	DARK GRAY	2
9	SILT & SAND	2
9	T/SHELLS	
8		1
8		2
8		2
12		
12		
12		
16		1
17		2
14		2
12		
12		
18		2
17		2
20		2
26		
30	HARD FINE TO	9
28	COARSE SAND	10
28	& GRAVEL	12
30		
27		
28	STIFF TO	3
	SOFT LIGHT	3
	GRAY CLAY	4
		3
		3
		3

(10) cont.



T. HUNT  
6/13/62

STATION 519 + 46.8  
OFFSET L 30.2

NOTE: MADE 2 TRIALS  
TO 20°.

Boring No. (12)

GROUND SURFACE  
ELEV. 122.1'

8	VERY LOOSE FINE TO COARSE SAND GRAVEL & CINDER FILL	1 1 2	
8	LOOSE FINE TO COARSE GRAY SAND GRAVEL FILL	4 5 -	10.0'
8	LOOSE FINE TO MEDIUM YELLOW SAND	3 4	15.0'
9	VERY LOOSE FINE TO COARSE SAND & GRAVEL	1 2 2 24 3 24	20.0'
9	SEE NOTE 1	1 2 2	27.0'
9	VERY LOOSE DARK GRAY SILT ORGANIC SHELLS LITTLE BAND T/PEAT	2 2 2 2 2	30.0'
10	COMPACT LIGHT GRAY SAND GRAVEL T/CLAY	15 16 16	44.0'
10	STIFF LIGHT GRAY CLAY	7 8 9	
10	MEDIUM LIGHT GRAY CLAY	3 4 4 3 3 4	55.0'

(12) cont.

	3	
	4	
	4	
	2	
	2	
	3	
SMALL STONES		75.0*
SEE NOTE 2	15	76.0*
	16	
	28	
STIFF LIGHT GRAY CLAY	6	79.0*
	6	
	7	
	82	0*

NOTE 1: VERY  
LOOSE FINE TO  
COARSE SAND  
GRAVEL BILT  
T/PEAT.

NOTE 2: COMPACT  
FINE TO COARSE  
SAND GRAVEL &  
CLAY

T. HUNT  
5/31/62

STATION 516+97.3  
OFFSET R182.9  
48 HR. WL 23.

Boring No. (13)

GROUND SURFACE  
ELEV. 106.4'

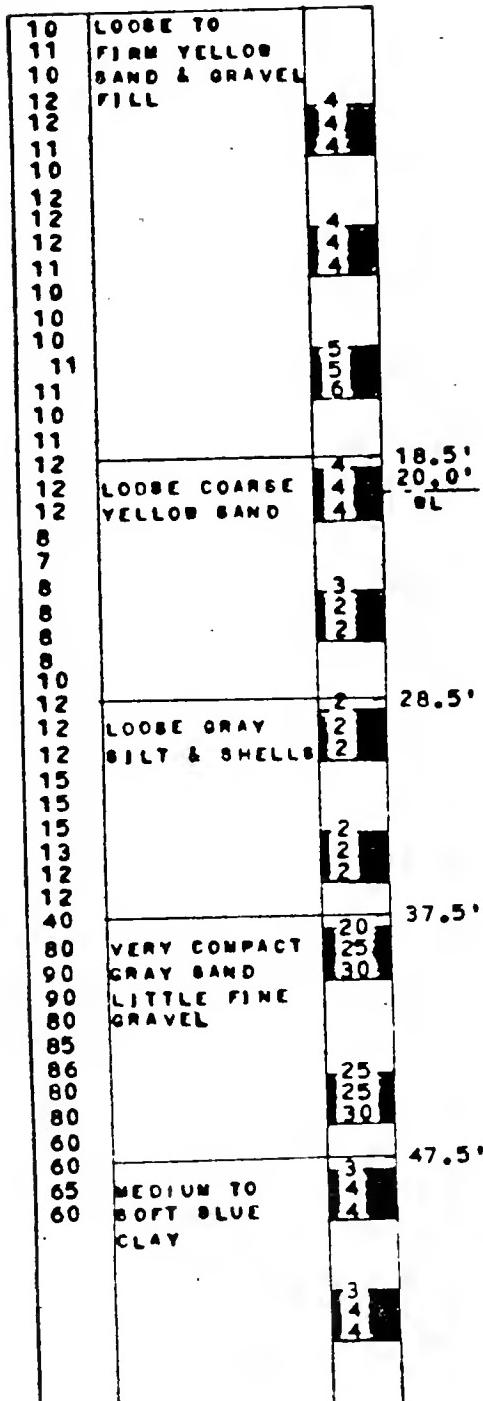
20	LOOSE SAND & STONE FILL	
15		4
15		4
18		5
10		5
10		6
6		7.5'
7	LOOSE COARSE SAND	3
6		3
6		3
6		
6		
7		
6	VERY LOOSE SILT & ORGANIC SHELLS	2
8		2
6		2
6		
7		
7		2
8		2
7		2
6		
6		
6		
7		2
6		2
6		2
10		
50		
100	VERY COMPACT MEDIUM GRAY SAND	25
95		30
100		30
95		
105		
		30
		30
		35
		40

L. RON HAN

STATION 517 + 42.8  
OFFSET R 251.4

Boring No. 14

GROUND SURFACE  
ELEV. 117.4'



24 HOUR TL 20.0°  
L. RONAN  
6/1/62

STATION 515 + 16.7  
OFFSET R 274.1

NOTE: CONCRETE ON  
SURFACE TO 0'-4"

HALEY & ALDRICH, INC.  
CAMBRIDGE, MASSACHUSETTS

# TEST BORING REPORT

HOLE NO.

15

FILE NO.

3926

SHEET NO.

1 of 2

LOCATION:

N490,625; E713,838

ELEVATION:

5.5

DATE START:

9/9/77

DATE FINISH:

9/9/77

DRILLER

F. Cook

INSPECTOR

T. Cavanagh

GROUNDWATER		DEPTH TO:		CASING	SAMPLER	CORE BARREL		
DATE	TIME	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE	40' BW	*S/S	-
9/9/77	1250	4.5'	40.0'	60.0'	SIZE 10	2-3/8"	1-3/8"	-
					HAMMER WT	300#	140#	-
					HAMMER FALL	24"	30"	-

SCALE IN FEET	STRATA CHANGE	CASING BLOWS PER FOOT	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	* "AW" Drill Rods FIELD CLASSIFICATION AND REMARKS		
		2	6	S1	0.0	Medium compact, black silty medium to fine SAND, little cinders, brick, coal, trace coarse sand, fine gravel		
		2	9		-	- FILL -		
		3	9		1.5			
		4						
-5		4						
		4						
		5	6	S2	5.0	Loose, brown coarse to fine SAND, little gravel, brick (poor recovery)		
		5	6		-	- FILL -		
		3	3		6.5			
		7						
-10		8						
		6						
		7						
		3	3	S3	10.0	Very loose, gray coarse to fine SAND, trace gravel - FILL-		
		2	2		-			
		1	1		11.5			
		3						
-15		4						
		4						
		5						
15.5		3	3	S4	15.0			
		5	2		-			
		2	2		16.5			
		6						
-20		8						
		7						
		8						
		9	1	S5	20.0	Very soft to soft, dark gray ORGANIC SILT, trace fine sand, shells		
		1	1		-	(OL)		
		12	1		21.5			
		12						
		15						
		14						
		12	P	S6	25.0			
		P			-			
		P			26.5			
		16						
		20						
		21						
		25						

BLOWS FT.	DENSITY	BLOWS FT.	CONSISTENCY	SAMPLE IDENTIFICATION	SUMMARY
0-4	VERY LOOSE	0-2	VERY SOFT	S	SPLIT SPOON
4-10	LOOSE	2-4	SOFT	T	THIN WALL TUBE
10-20	MEDIUM COMPACT	4-8	MEDIUM STIFF	U	UNDISTURBED PISTON
20-50	COMPACT	8-15	STIFF	O	OPEN END ROD
50+	VERY COMPACT	15-30	VERY STIFF	W	WASH SAMPLE

OVERBURDEN 60.0 ft.

ROCK --

SAMPLES 13S

HOLE NO. I-15

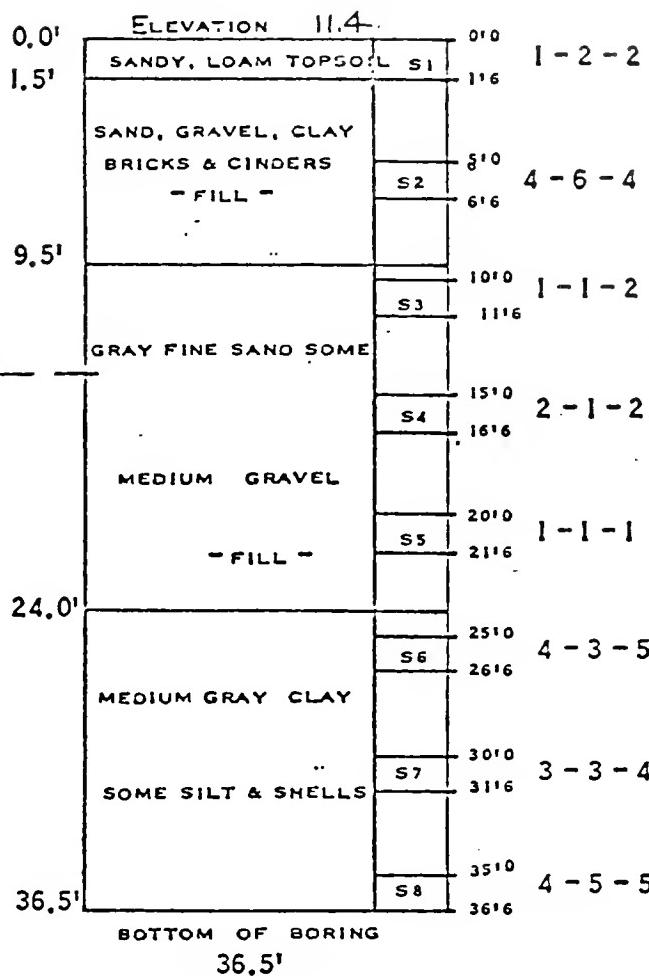
SCALE IN FEET	STRATA CHANGE	CASING BLOWS PER FOOT	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
35	35 - 36.0	20	P	S7	30.0 - 31.5	Very soft, gray ORGANIC SILT, trace fine sand, shells (OL)
			P			
		28	P			
		31				
		30				
		33				
	36.0 - 38.0	26	3	S8	35.0 - 36.5	Medium stiff, gray-brown clayey ORGANIC SILT, trace fine sand, peat (OL/CL)
			3			
		30	4			
		37				
		41				
40	40 - 45	48		S9	40.0 - 41.5	Stiff to very stiff, gray silty CLAY (CL)
			7			
		12				
		12				
		4			45.0 - 46.5	
	45 - 50	6		S10		Stiff to very stiff, gray silty CLAY (CL)
		6				
50 - 60	50 - 55	3		S11	50.0 - 51.5	Stiff to very stiff, gray silty CLAY (CL)
		4				
		5				
		4			55.0 - 56.5	
		5				
	55 - 60	4		S12		Bottom of Exploration at 60.0 ft.
		4				
		4				
		5				

BLOWS FT.	DENSITY	BLOWS FT.	CONSISTENCY	SAMPLE IDENTIFICATION	SUMMARY
0-4	VERY LOOSE	0-2	VERY SOFT	S - SPLIT SPOON	OVERBURDEN: _____
4-10	LOOSE	2-4	SOFT	T - THIN WALL TUBE	ROCK: _____
10-30	MEEDIUM COMPACT	4-8	MEDIUM STIFF	U - UNDISTURBED PISTON	SAMPLES: _____
30-50	COMPACT	8-15	STIFF	O - OPEN END ROD	
50+	VERY COMPACT	15-30	VERY STIFF	W - WASH SAMPLE	HOLE NO. _____

BORING NO. 287-HARCOURT ST.

BORING NO.

(16)



- REQUIRED DEPTH -

NOTE - BORING FOREMAN WAS INSTRUCTED BY MR. BEAL  
TO TAKE THIS BORING 10' BELOW GRADE OF RAILROAD TRACKS.

NOTE - INSTALLED OBSERVATION WELL TO A DEPTH OF  
30.0', USED ONE 5' LENGTH OF SLOTTED 1-1/2" PVC  
PIPE AND 25' OF PLAIN PVC PIPE, ONE 2.5' LENGTH  
OF 2-1/2" PIPE & ONE 2-1/2" CAP. RETURNED ON  
3-17-76 AND OBTAINED WATER READING "WATER AT 13.2"

EL. TOP CASING = 12.43

NOTE - "S" DESIGNATES SAMPLE NUMBER.

3 - 13 - 76

NOTE - ALL ABOVE CLASSIFICATIONS ARE THAT OF BORING FOREMAN  
ALL SAMPLES WERE DELIVERED TO M.B.T.A. OFFICE AFTER COMPLETION  
OF BORING PROJECT.

FOOTAGE OF BORING THIS SHEET 36.5'

WATER READING INDICATES SURFACE OF WATER AT COMPLETION OF BORING UNLESS NOTED OTHERWISE. FIGURES IN LOG COLUMN INDICATE  
NUMBER OF HITS TO DRIVE 2" SPLIT SAMPLER 6 INCHES WITH 140 LB WEIGHT FALLING 30 INCHES UNLESS OTHERWISE  
SHEET 7 OF 7 FOREMAN BW ..... CLASIFICATION BY BW RB NO. 1031

HALEY & ALDRICH, INC.  
CAMBRIDGE, MASSACHUSETTS

# TEST BORING REPORT

HOLE NO.

(17)

PROJECT Southwest Corridor - Section One

CLIENT Kaiser Engineers, Inc./Fay, Spofford & Thorndike, Inc.

CONTRACTOR Guild Drilling Company, Inc.

FILE NO. 3926

SHEET NO. 1 of 2

LOCATION: N490,853; E714,172

ELEVATION: 12.0

DATE START: 9/13/77

DATE FINISH: 9/13/77

DRILLER: F. Cook

INSPECTOR: T. Cavanagh

GROUNDWATER		DEPTH TO:		CASING			SAMPLER	CORE BARREL
DATE	TIME	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE	35" BW	* S/S	--
9/13	1515	9.9'	35.0	60.0'	SIZE ID	2-3/8"	1-3/8"	--
					HS. HMR WT	300#	140#	--
					HAMMER FALL	24"	30"	--

SCALE IN FEET	STRATA CHANGE	CASING BLOWS PER FOOT	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	* "AW" Drill Rods			FIELD CLASSIFICATION AND REMARKS	
						FIELD CLASSIFICATION AND REMARKS				
-	5	8			0.5	6" Bituminous concrete at surface			Compact, brown silty medium to fine SAND, little coarse to fine gravel, trace coarse sand, cement - FILL -	
		11			-					
		16	17	S1	2.0					
		13								
		27								
	10	27								
		31								
		10	10	S2	5.0	Medium compact, brown silty medium to fine SAND, little medium to fine gravel, trace coarse sand, brick, ash, metal, asphalt				
		10	10		-					
		19	9		6.5					
-15	16.5	22							- FILL -	
		23								
		26								
		10	16	S3	10.0	Compact, brown to black coarse to fine SAND, little coarse to fine gravel, silt, trace wood, cobbles - FILL -				
		16	16		-					
		8	15		11.5					
		39								
		40								
		12								
		8	9	S4	15.0	Medium compact, black coarse to fine SAND, little gravel, trace brick				
-20	20	9	4		-				- FILL -	
		13			16.5					
		12								
		11								
		P		S5	20.0					
		P			-					
		P			21.5					
		9								
		11								
		12								
-25	25	Very soft, dark gray ORGANIC SILT, trace shells (OL)								
		12								
		P		S6	25.0					
		P			-					
		P			26.5					
		13								
		14								
		14								
		14								

BLOWS FT.	DENSITY	BLOWS FT.	CONSISTENCY	SAMPLE IDENTIFICATION	SUMMARY
0-4	VERY LOOSE	0-2	VERY SOFT	S	SPLIT SPOON
4-10	LOOSE	2-4	SOFT	T	THIN WALL TUBE
10-20	MEDIUM COMPACT	4-8	MEDIUM STIFF	U	UNDISTURBED PISTON
20-50	COMPACT	8-15	STIFF	O	OPEN END ROD
50+	VERY COMPACT	15-20	VERY STIFF	V	WASH SAMPLE

OVERBURDEN 60.0 ft.

ROCK --

SAMPLES 14 S

HOLE NO. 1-13

## TEST BORING REPORT

HOLE NO 17  
PAGE 2 OF 2

SCALE IN FEET	STRATA CHANGE	CASING BLOWS PER FOOT	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
		P				
		21	P	S7	30.0 - 31.5	Very soft, dark gray ORGANIC SILT, little fine sand, trace shells, fine sand partings (OL)
	31.5	17				
		18				
-35		21				Medium compact, gray coarse to fine SAND, little gravel, trace silt (SP)
		40				
		4	S8		35.0	
	36.0	8			36.0	
		12	SBA		36.5	
-40		5			40.0	
		10	S9		-	
		13			41.5	
-45		3			45.0	
	46.5	6	S10		-	
		7			46.5	
-50		2			50.0	
		3	S11		-	
		4			51.5	
-55		6			55.0	
		7	S12		-	
		4			56.5	
-60		6			58.5	
		10	S13		-	
		11			60.0	Bottom of Exploration at 60.0 ft.

BLOWS/FT.	DENSITY	BLOWS FT.	CONSISTENCY	SAMPLE IDENTIFICATION	SUMMARY
0-4 4-10 10-30 30-50 50+	VERY LOOSE LOOSE MEDIUM COMPACT COMPACT VERY COMPACT	0-2 2-4 4-8 8-15 15-30	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF	S — SPLIT SPOON T — THIN WALL TUBE U — UNDISTURBED PISTON O — OPEN END ROO W — WASH SAMPLE	OVERBURDEN _____ ROCK _____ SAMPLES _____ HOLE NO _____

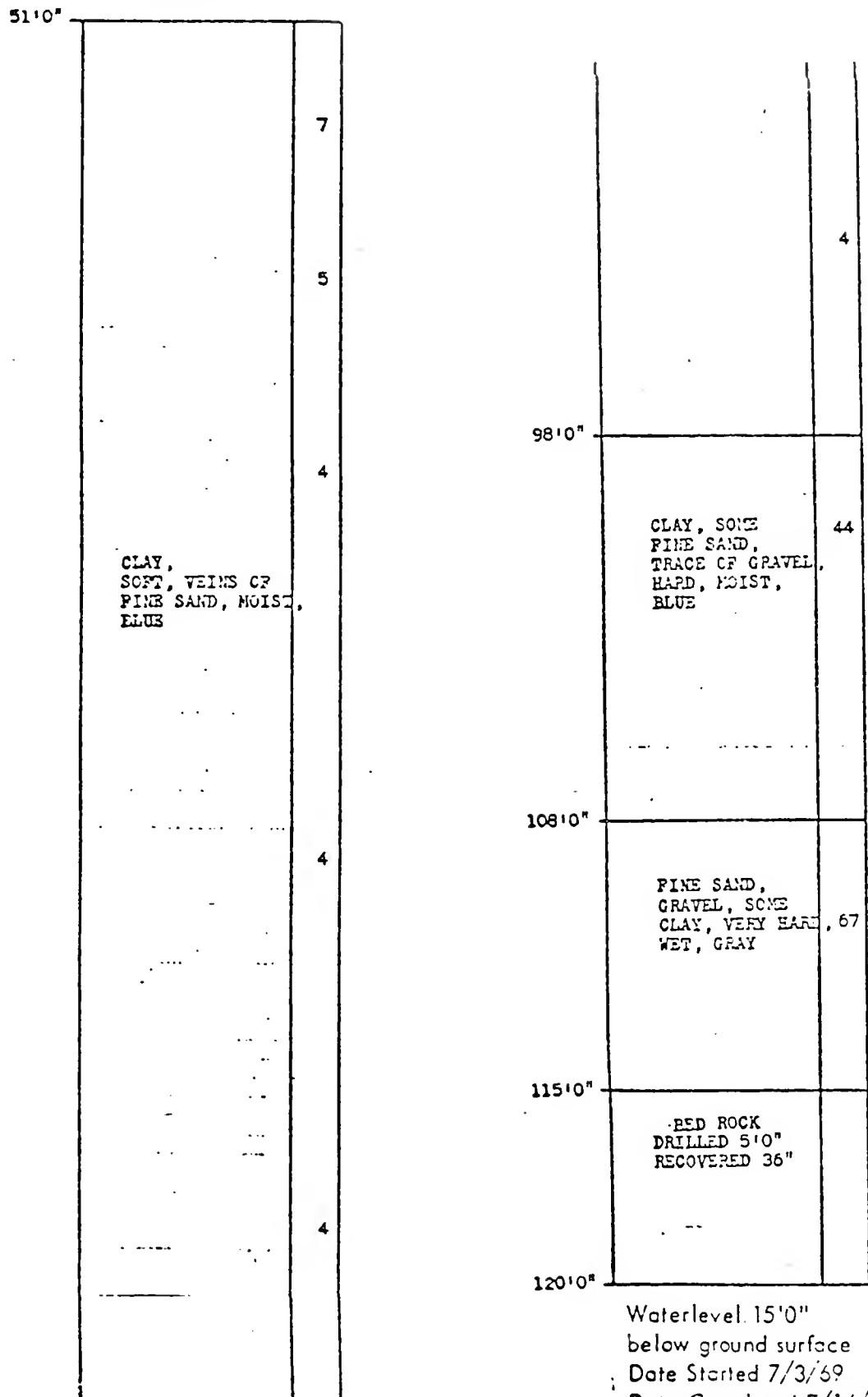
GROUND SURFACE ELEV. 22.0±

0' 6"	V.C.D. TOP	
		39
		12
	PILL, SAND, GRAVEL, LITTLE CINDER, WOOD, RUBBISH, HARD, DRY, BROWN	
	25	
2' 0"		
		12
		16
	PILL, SAND, SOME GRAVEL, FIRM, MOIST, YELLOW	
	14	
26' 0"		
		4
		3
	ORGANIC SILT, TRACE OF SHELLS, SOFT, MOIST, DARK GRAY	

	5
	6
43' 0"	
	23
	17
	CLAY, HARD, MOIST, YELLOW
51' 0"	

BORING  
(CONTINUED)

18



Waterlevel 15'0"  
below ground surface  
Date Started 7/3/69  
Date Completed 7/14/69



**APPENDIX F**

**GROUNDWATER DATA**



# Boston Public Library

## WATER LEVEL COMPUTATIONS

Date December 1978

NO.	Point of Cut-off	Location	Original Reading	Floor Grade	12/2	12/9	12/16	12/23	12/30	Variation for Month
1	1.000	Und. sidewalk Boylston	3.847	9.36	4.08	4.12	4.20	4.28	4.37	.29
2	1.000	" " Dart. & "	3.236	9.52	2.58	4.27	4.35	4.23	4.19	.61
3	1.000	" " cor. Blagden	3.403	8.95	2.66	4.69	4.36	4.24	4.11	.25
4	1.000	" " water meter	3.340	9.31	4.11	5.19	5.11	4.99	4.95	.64
5	3.500	Manhole	4.389	9.57	5.03	5.49	5.58	5.49	5.40	.37
6	3.500	Basement under Stack One	4.657	9.18	4.90	5.41	5.44	5.41	5.36	.46
7	3.500	Book Sorting	4.375	9.32	4.36	5.15	5.40	5.40	5.36	.1.
8	1.000	Und. Front Vestibule	4.080	10.04	3.70	4.63	5.	5.	5.	+1.3
9	3.500	Und. Newspaper Room	3.788	9.98	4.00	4.12	4.62	4.57	4.74	.66
10	3.500	Chair Storage	5.070	9.17	5.09	5.59	5.67	5.34	5.57	.48
11	3.500	Under Patent Room	4.870	9.49	5.05	5.56	5.68	5.65	5.65	.6

All readings and figures start from  
the common point of "0" which is mean  
low tide level.

The unit being used is the foot —  
12 inches — in all readings.

Superintendent of Library Building

# Boston Public Library

## WATER LEVEL COMPUTATIONS

Date January 1979

No.	Point of Cut-off	Location	Original Reading	Floor Grade	1/6	1/13	1/20	1/27	Variation for Month
1	1.000	Und. sidewalk Boylston	3.847	9.36	4.41	4.41	4.41	4.50	+ .09
2	1.000	" " Dart. & "	3.236	9.52	4.11	3.98	3.90	4.96	+ .84
3	1.000	" " cor. Blagden	3.403	8.95	4.02	3.65	3.57	4.69	+ .67
4	1.000	" " water meter	3.340	9.31	4.04	3.74	3.62	4.76	+ .34
5	3.500	Manhole	4.389	9.57	5.15	4.49	4.36	5.32	+ .17
6	3.500	Basement under Stack One	4.657	9.18	5.67	4.18	4.32	5.15	+ .08
7	3.500	Book Sorting	4.375	9.32	5.31	4.61	4.40	5.23	- .08
8	1.000	Und. Front Vestibule	4.080	10.04	4.96	4.51	4.26	5.13	+ .17
9	3.500	Und. Newspaper Room	3.788	9.98	4.71	4.41	4.41	5.00	- .33
10	3.500	Chair Storage	5.070	9.17	5.35	4.67	4.47	5.35	0
11	3.500	Under Patent Room	4.870	9.49	5.22	4.64	4.38	5.22	0

All readings and figures start from  
the common point of "0" which is mean  
low tide level.  
The unit being used is the foot —  
12 inches — in all readings.

T. J. S. J. T. C.  
Superintendent of Library Buildings

# Boston Public Library

## WATER LEVEL COMPUTATIONS

NO.	Point of Cut-off	Location	Original Reading	Floor Grade	2/3	2/10	2/17	2/24	Variation for Month
1	1.000	Und. sidewalk Boylston	3.847	9.36	4.50	4.50	4.42	4.28	- .22
2	1.000	" " Dart. & "	3.236	9.52	4.31	3.83	3.42	3.06	- 1.25
3	1.000	" " cor. Blagden	3.403	8.95	3.94	3.49	3.12	3.28	- .66
4	1.000	" " water meter	3.340	9.31	3.95	3.46	3.22	2.70	- .25
5	3.500	Manhole	4.389	9.57	4.74	4.32	3.96	3.94	- .80
6	3.500	Basement under Stack One	4.657	9.18	4.61	4.23	3.90	3.69	- 1.62
7	3.500	Book Sorting	4.375	9.32	4.69	4.27	4.02	3.69	- 2.0
8	1.000	Und. Front Vestibule	4.080	10.04	4.67	4.18	3.70	3.26	- 1.41
9	3.500	Und. Newspaper Room	3.788	9.98	4.42	4.37	3.68	3.52	- .89
10	3.500	Chair Storage	5.070	9.17	4.80	4.38	4.00	3.75	- 1.05
11	3.500	Under Patent Room	4.870	9.49	4.72	4.30	3.93	3.72	- 2.0

All readings and figures start from the common point of "0" which is mean low tide level.  
 The unit being used is the foot — 12 inches — in all readings.

P. H. S. L.

Superintendent of Library Buildings

DUSONI UNION LIBRARY

WATER LEVEL COMPUTATIONS

Date Mar. 1, 1979

NO.	Point of Cut-off	Location	Original Reading	Floor Grade	3/3	3/10	3/16	3/21	3/31	Variation for Month
1	1.000	Und. sidewalk Boylston	3.847	9.36	4.28	4.20	4.16	4.12	4.02	- .26
2	1.000	" Dart. & "	3.236	9.52	3.74	3.90	3.66	3.42	3.06	- .68
3	1.000	" " cor. Blagden	3.403	8.95	3.53	3.61	3.53	3.12	2.96	- .57
4	1.000	" " water meter	3.340	9.31	3.38	3.38	3.62	3.14	3.06	- .32
5	3.500	Manhole	4.389	9.57	4.15	4.23	4.23	3.98	3.86	- .29
6	3.500	Basement under Stack One	4.657	9.18	3.48	4.10	4.15	3.90	3.73	+ .05
7	3.500	Book Sorting	4.375	9.32	3.81	4.02	4.02	3.98	3.73	- .08
8	1.000	Und. Front Vestibule	4.080	10.04	3.70	3.86	3.78	3.62	3.26	- .14
9	3.500	Und. Newspaper Room	3.788	9.98	3.60	3.92	3.02	3.68	3.26	- .44
10	3.500	Chair Storage	5.070	9.17	3.92	4.17	4.17	3.97	3.80	- .12
11	3.500	Under Patent Room	4.870	9.49	3.85	4.05	3.97	3.85	3.68	- .17

All readings and figures start from  
the common point of "0" which is mean  
low tide level.  
The unit being used is the foot —  
12 inches — in all readings.

T. J. L. Librarian  
Superintendent of Library Building

# Boston Public Library

## WATER LEVEL COMPUTATIONS

No.	Point of Cut-off	Location	Original Reading	Floor Grade	Date May 1979			Variation for Month
					5/15	5/22	5/29	
1	1.000	Und. sidewalk Boylston	3.847	9.36	2.95	1.03	-.03	+ .33
2	1.000	" " Dart. & "	3.236	9.52	3.02	1.23	1.17	+1.37
3	1.000	" " cor. Blagden	3.403	8.95	2.86	1.69	5.07	+1.17
4	1.000	" " water meter	3.340	9.31	1.95	5.36	5.56	+ .12
5	3.500	Manhole	4.389	9.57	2.08	5.99	5.74	+ .16
6	3.500	Basement under Stack One	4.657	9.18	2.41	5.90	5.35	+ .25
7	3.500	Book Sorting	4.375	9.32	5.15	2.73	5.65	.82
8	1.000	Und. Front Vestibule	4.080	10.04	1.21	1.12	5.26	+1.34
9	3.500	Und. Newspaper Room	3.788	9.98	1.41	1.62	5.24	+ .54
10	3.500	Chair Storage	5.070	9.17	5.47	6.09	5.65	+ .18
11	3.500	Under Patent Room	4.870	9.49	5.29	.95	5.73	+ .12

All readings and figures start from  
the common point of "0" which is mean  
low tide level.  
The unit being used is the foot —  
12 inches — in all readings.

*T. P. Thompson*  
Superintendent of Library Buildings

# Boston Public Library

## WATER LEVEL COMPUTATIONS

NO.	Point of Cut-off	Location	Original Reading	Floor Grade	Date <u>June 1919</u>					Variation for Month
					6/2	6/9	6/16	6/23	6/30	
1	1.000	Und. sidewalk Boylston	3.847	9.36	4.37	4.37	4.32	4.28	- .09	
2	1.000	" " Dart. & "	3.236	9.52	4.19	4.06	3.82	3.66	3.58	- .21
3	1.000	" " cor. Blagden	3.403	8.95	3.82	3.61	3.53	4.04	+ .62	
4	1.000	" " water meter	3.340	9.31	3.91	3.86	3.62	3.54	3.45	+ 1.28
5	3.500	Manhole	4.389	9.57	4.90	4.82	4.32	4.04	5.58	+ .68
6	3.500	Basement under Stack One	4.657	9.18	4.86	4.81	4.57	4.61	5.61	+ .75
7	3.500	Book Sorting	4.375	9.32	4.89	4.77	4.44	4.31	5.40	+ .55
8	1.000	Und. Front Vestibule	4.080	10.04	4.67	4.47	4.17	3.94	4.67	0
9	3.500	Und. Newspaper Room	3.788	9.98	4.33	4.24	4.24			
10	3.500	Chair Storage	5.070	9.17	5.01	4.97	4.67	4.55	5.76	+ .75
11	3.500	Under Patent Room	4.870	9.49	4.82	4.82	4.39	4.22	5.73	+ .81

All readings and figures start from the common point of "0" which is mean low tide level.  
 The unit being used is the foot — 12 inches — in all readings.

*T. D. C. C. — Library Building*

Superintendent of Library Buildings

**APPENDIX G**

**SECTION 106 REVIEW LETTER**





CITY OF BOSTON  
OFFICE OF THE MAYOR  
CITY HALL BOSTON

KEVIN H. WHITE  
MAYOR

SEP 2 1980

Mr. Jordan E. Tannenbaum  
Chief, Eastern Division of Project Review  
Advisory Council on Historic Preservation  
1522 K Street N.W.  
Washington, DC 20005

ATTENTION SHARON CONWAY

Dear Mr. Tannenbaum:

Re: Copley Place Development, Boston, Massachusetts

Pursuant to Section 106 of the National Historic Preservation Act of 1966 and the procedures of the Advisory Council on Historic Preservation (36 CFR Part 800) the City of Boston, acting for the U.S. Department of Housing and Urban Development (HUD) pursuant to Section 104(h) of the Housing and Community Development Act of 1974, as amended, has consulted with the Massachusetts State Historic Preservation Officer regarding the proposed Copley Place Development in the Back Bay section of the City of Boston, for which the City has applied to HUD for Urban Development Action Grant funds to assist in the implementation of this project.

The proposed project is adjacent to several properties listed in, or eligible for listing in, the National Register of Historic Places, including the Back Bay Historic District, the South End Historic District, the St. Botolph Street Historic District, the Boston Public Library, and Trinity Church.

Because final plans and specifications, including a final selection of materials, have not been submitted for review, it has been determined that any potential adverse effect of this undertaking on the above-mentioned properties will be successfully mitigated by the City, the SHPO, and the Advisory Council entering into a Memorandum of Agreement containing the following stipulations:

- (1) Prior to commencing construction of the above-grade portions of the retail center, hotels, housing, and office buildings components of the project, the City of Boston will submit final plans and specifications, together with samples of facade materials to be used, to the Massachusetts State Historic Preservation Officer for review and approval. If, after review, the State Historic Preservation Officer is of the opinion that the undertaking will have an adverse effect on the above-mentioned properties, the City will request the comments of the Council in accordance with Section 800.4(e) of the Council's procedures.
- (2) Non-brick facade material used for the housing component of the project, including material used for window bays and for horizontal bands at the floor lines and balconies, shall be of the same or compatible masonry

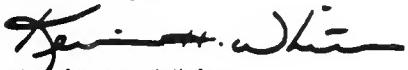
material as that selected for the overall masonry material of the other components of the project. The use of a "dryvit" is not an acceptable application in this instance.

To aid you in your review of this project, I am forwarding to you, under separate cover, the following documentation:

- (1) Set of plans, outline specifications, and elevations for the project components, as follows:
  - (a) Western International Hotel: plans, sections, elevations and outline specifications;
  - (b) Marriot Hotel: plans, elevations, and outline specifications;
  - (c) Central Area - Retail/Office: plans, sections, elevations, and outline specifications;
  - (d) Housing: plans and elevations.
- (2) Photographs (colored) of proposed facade materials under consideration for use in the project.
- (3) A 106 Review Package document, prepared by the project developers (Urban Investment and Development Co.), containing a narrative description of the project and discussion of effects, including:
  - (a) Description of the current project program, together with site plans and sections;
  - (b) Description of the site and adjacent historic properties, together with photographs;
  - (c) Discussion of massing and scale impacts of the project;
  - (d) Discussion of materials, textures, and colors incorporated into the project elements;
  - (e) Discussion of shadow impacts;
  - (f) Discussion of wind impacts;
  - (g) Discussion of construction impacts;
  - (h) Discussion of traffic impacts.

Should you have any questions with regard to this undertaking, please contact Mr. Richard Mertens, Environmental Review Officer, at (617) 722-4300, extension 288, or Mr. Joseph Orfant of the Massachusetts Historical Commission, at (617) 727-8470.

Sincerely,



Kevin H. White  
Mayor

**APPENDIX H**

**PUBLIC SERVICES**



**Boston Water and  
Sewer Commission**



10 Post Office Square  
Boston, Massachusetts 02109  
617-426-6046

December 11, 1979

Mr. Robert J. Merlino  
HMM Associates  
161 Highland Avenue  
Needham, MA 02194

% Margaret T. Baldwin

Re: Copley Place Project

Dear Mr. Merlino:

This will acknowledge your letter of December 4, 1979, regarding a new environmental report on the above referenced project.

Please be advised at this time that with your new project design of 475,000 gallons per day adequate facilities for water services are available at this location.

Furthermore, the water supply system in that part of Boston is expected to have been upgraded by the 1983 service date of the project, although the system will be adequate even without the planned improvements.

As you earlier pointed out, the 42-inch water main under the project site will have to be relocated. The proposed plans, methods, and schedules of relocating this main must be submitted to the Commission for approval before any construction is undertaken since the deactivation of this main will affect certain portions of the City.

Water for fire fighting service is also readily available in the area from the high service system.

A further study would have to be undertaken to determine if the sewer services would be adequate to handle your new project design of a peak load of 355,000 gallons per day.

Very truly yours,

*John P. Sullivan*  
John P. Sullivan, P.E.  
Division Engineer

JPS:ps

SOURCES USED IN DETERMINING  
WATER, SEWAGE AND SOLID WASTE REQUIREMENTS

Clark and Veissman, Jr., Water Supply and Pollution Control,  
March 1966.

Homer, Parker, Wastewater Systems Engineering.

American Society of Civil Engineers and the Water Pollution Control  
Federation, Sewer Design and Construction, 1969.

Hardenbergh and Brodie, Water Supply and Waste Disposal, January 1960.

**APPENDIX I**  
**ENERGY**





Boston Gas Company  
201 Rivermoor Street  
Boston, Massachusetts 02132  
Telephone (617) 323-9210

HMM Associates, Inc.  
One Forbes Road  
Lexington, MA. 02173  
Attn: Ms. Baldwin

December 13, 1979

RE: Ref. 79-020 (Copley Place)

Dear Ms. Baldwin:

As mentioned in your letter dated December 5, 1979, the estimated natural gas requirements for the proposed Copley Place Project in Boston are as follows:

Peak ----- 22,500 cubic feet per hour  
Annual Use --- 29,000,000 cubic feet per year

Based on our current projections, Boston Gas Company will be able to provide the required gas service to the project beginning in 1983. The need for any gas main modifications will be determined after an engineering review has been completed and gas loads are confirmed in writing prior to completion of the final plans.

Thank you for your cooperation and for keeping us updated on the projects' progress.

Sincerely,

*H Raymond Skellett*

H. Raymond Skellett  
Comm.-Ind. Representative

HRS/jp

CC: David Rainville, Engineering

BOSTON EDISON COMPANY  
GENERAL OFFICES 800 BOYLSTON STREET  
BOSTON, MASSACHUSETTS 02199

December 5, 1979

Miss Margaret T. Baldwin  
H.M.M. Associates  
One Forbes Road  
Lexington, MA 02173

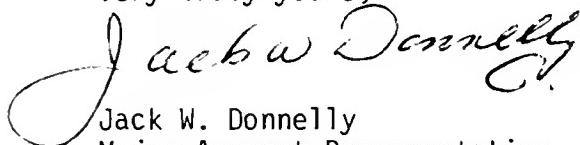
Dear Miss Baldwin:

In answer to your inquiry regarding load requirements for the Copley Place Complex, please be advised as follows:

The Engineering Department of the Boston Edison Company has advised me that they will be able to meet your electrical load requirement of 22,590 kW during the year 1984.

The distribution of said load to the various buildings will be discussed with those involved when the project reaches that stage where more definitive load information is available.

Very truly yours,



Jack W. Donnelly  
Major Account Representative  
Major Accounts Division  
Commercial Department

JWD/nks

BOSTON EDISON COMPANY  
GENERAL OFFICES 800 BOYLSTON STREET  
BOSTON, MASSACHUSETTS 02199

December 5, 1979

Ms. Margaret T. Baldwin  
HMM Associates, Inc.  
One Forbes Road  
Lexington, MA 02173

RE: Copley Place Project

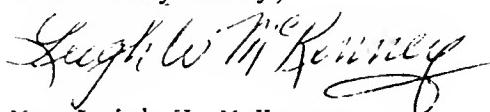
Dear Ms. Baldwin:

This will confirm our telephone conversation of this morning regarding the Copley Place Project. Boston Edison does have ample capacity to supply the 1983 steam requirements of this structure which you estimate to be 85,660 #/hour demand and 165,800,000 pounds consumption per year. It is our understanding that this consumption estimate does not include steam air conditioning as electric air conditioning is being considered.

At this point we would like to suggest that steam air conditioning be given serious consideration for use in this project for several reasons. First, steam air conditioning use is off our steam system peak which allows us to offer very attractive summer rates. Second, steam air conditioning improves our system load factor to the extent that we have established a rate which allows a credit of \$.60 per M pound to the customer who maintains a load factor of 65% or better. Third, electric air conditioning, as I am sure you are aware, falls squarely on the electric system's peak. One of the major items in President Carter's energy plan is for the regulators to require that utilities offer incentives to encourage off peak electric use. Time of use rates are at this time experimental, however, it is fairly probable that they will be adopted in one form or another in the near future.

We would be most appreciative if you would keep us informed on the progress of the project. Should you need further assistance or information please let us know, we would be more than pleased to help.

Yours very truly,



Mr. Leigh W. McKenney  
424-2313  
Senior Supervising Engineer  
Steam Division  
Commercial Department

cc. Messrs: D. F. Cronan  
L. E. Tuck

BASIS FOR TABLES 7.11-1 AND 7.11-2

ELECTRIC - Unit load data and load factors are based on office design data and information from utility companies.

STEAM - Demand is based on preliminary heat loss calculations in accordance with Massachusetts energy code. Load factors are from ASSRAY Guide and review of actual Boston Edison Company and Consolidated Edison data.

GAS - Based on estimated requirements for domestic hot water and commercial cooking.

## APPENDIX J

SUMMARY OF ENVIRONMENTAL EFFECTS -

1978 DEVELOPMENT PROGRAM



December 1, 1978

DETAILED SECTION	ENVIRONMENTAL ELEMENTS	STANDARDS AND MEASUREMENTS	POTENTIAL EFFECTS OF TWO DEPARTMENT STORE PLAN	POTENTIAL EFFECTS OF ADDING A THIRD DEPARTMENT STORE AND RELATED PARKING
6.1	AIR QUALITY - Effects would primarily be associated with (1) vehicular traffic generated by Copley Place (2) decking over portion of the Masspike and venting mechanically collected emissions through stacks above retail area. (3) changes in wind speeds and directions caused by Copley Place high-rise structures.	Standards: National ambient Air Quality Standards (NAAQS) were established to ensure the health and well being of the general public. The NAAQS restrict exposure to 15 parts per million for one-hour CO and 9 ppm for eight-hour CO. Impacts would occur if the project significantly raised concentrations over "no-build" levels or caused new violations of NAAQS.	"Worst case" one-hour background CO levels in the one-hour CO levels in the areas surrounding the project. Measured by change in the one-hour CO levels in the areas surrounding the project which are not unduly influenced by specific sources of pollution. (Sect. 6.1.3)	"Worst case" one-hour background CO levels which could occur if expected to increase by approximately 10% over the "no-build" levels, while eight-hour CO would increase by 20% except in the immediate vicinity, where it is expected to increase by only 10%. With these increases, background CO would remain a small fraction of the air quality limits specified by NAAQS.
b) LOCAL CO - Quality of the ambient air at certain critical receptors in the surrounding area. (Sect. 6.1.4)	Measured by changes in the one-hour and eight-hour CO levels expected at the "critically receptors".	One-hour CO levels improve at 3 of the seven receptors while 2 of the receptors (Newbury St. between Germantown and Faneuil St., end Stuart St. between Huntington and Dartmouth) would receive increases in maximum CO levels under "worst case" conditions. However, these increases would create no new violations of NAAQS.	Measured by changes in the one-hour and eight-hour CO levels expected at the "critically receptors".	Maximum one-hour and eight-hour CO levels caused by the Two Department Store Plan would be lowered by approximately 2-10%. This reduction is not considered significant by air quality consultants. (Sect. 6.1.9)
c) AIR QUALITY UNDER NEW PORTION OF DECK - The existing deck (turnpike "cover") at the Pru Center would be extended over the Copley Place project area; air quality could be affected for Masspike users and work crews. (Sect. 6.1.6)	Changes in quantity of CO, NO <sub>x</sub> , TSP caused by extension of deck.	Eight-hour CO levels would be lowered at 3 receptors. The Stuart Street receptor (within the project boundaries) would receive a significant increase under "worst case" conditions due to the partial extension of hotel facilities over the trees between Huntington and Dartmouth. The eight-hour NAAQS would be violated at this location.	Turpilke users would be subjected to elevated pollutant levels for short periods while traversing the covered portion. Copley Place would double the existing ventilation capacity, minimising potential impact. Work crews would be subjected to increases in CO, NO <sub>x</sub> and TSP but the proposed ventilation capacity would insure that OSHA standards would not be violated.	No discernible effect.

\*U.S. Occupational Safety and Health Administration.

## 1978 PROGRAM

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Section	Environmental Elements	Standards And Measurements	Potential Effects of	Potential Effects of
			Two Department Store Plan	Adding A Third Department Store and Related Parking
6.2	<b>TRANSPORTATION - Effects would primarily be associated with</b>			Potential effects of traffic volume. Net traffic volume would be reduced by 10%.
	(1) temporary re-routing of east ramps and local street lane clearings during construction period (2) traffic generated by operation of Copley Place (3) traffic generated by other nearby improvements.			
a)	<b>Vehicular Traffic - Flow of vehicles on roadways in the surrounding area during construction and operation of the project. (Sect. 6.2.1 &amp; 6.2.2)</b>	Congestion as measured by changes in Level of Service (LOS) on local street network measured for peak hour.	During construction, temporary re-routing of Masspike exiting traffic would create LOS "D" or better at the Stuart/Dartmouth intersection. Although volume on streets adjacent to the project would increase, LOS would not be adversely affected, except on Huntington where the curb lane would be closed during later phases of construction. LOS would temporarily be lowered from "C" to "D" at the Huntington/Dartmouth intersection. Construction worker traffic and such movements would not have significant impact on surrounding road network.	During operation, expanded traffic would have no effect on peak-hour volumes in the surrounding network. Allocation of projected volume increases in peak-hour traffic would not change LOS surrounding intersections created by the two Department Store Plans. (Table 7-3-1)
b)	<b>Pedestrian Traffic - Flow of pedestrians in the surrounding area during construction and operation of the project. (Sect. 6.2.3. &amp; 6.2.4)</b>	Mobilities to the flow of pedestrian traffic causing delays or inconvenience.	During operation of Copley Place, peak-hour traffic volume approaching the project would increase by approximately 28% on the seven street segments abutting the site. LOS at the surrounding intersections would remain at existing levels except at Hascourt/Dartmouth, Exeter/Huntington, and Dartmouth/St. James/Huntington intersections which would decrease from "C" to "D".	During operation, flow between the Pru Center and Back Bay Station would be temporarily constrained; positive routing should be provided on the pedestrian ways adjacent to the site. Other pedestrian ways in the surrounding area would not be affected by construction activity.
b)	<b>Pedestrian Traffic - Flow of pedestrians in the surrounding area during construction and operation of the project. (Sect. 6.2.3. &amp; 6.2.4)</b>	Mobilities to the flow of pedestrian traffic causing delays or inconvenience.	No additional effects.	No discernible effects.

# 1978 PROGRAM

DEIR Section	Environmental Elements	Potential Effects of Two Department Store Plan	Potential Effects of Adding A Third Department Store And Related Parking	Potential Effects if Traffic Volume were Reduced by 10%
c)	Public Transit - Usage and facilities in the surrounding area during construction and operation of the project. (Section 6.2.5 and 6.2.6)	Change in ridership volumes and/or patterns at peak hours.	During construction, additional demands created by construction worker traffic would be well within peak capacities of the existing systems (Orange Line and bus).	No discernable effect.
d)	Parking Supply - Availability of parking spaces in the surrounding area during construction and operation of the Project. (Section 6.2.7 and 6.2.8)	Inconveniences and delays caused by demand for spaces in excess of supply.	During operation, the project would significantly increase peak-hour demand by a maximum of 7,700 riders, but with the addition of the new Orange Line, peak-hour capacity will be increased by approximately 28,000 riders. Copley Place would not adversely impact the surrounding transit facilities because anticipated capacity will be in excess of demand created by the project.	During operation, shortfalls of projected demand over supply would be reduced from 310 spaces to 191 spaces which would proportionately reduce competition for spaces in the surrounding area. (Table 7.3-11)
e.)	Visual Quality - Effects primarily related to (1) height and placement of high-rise components resulting in shadows (2) architectural quality of the facility and visual relationship to the surrounding area.	Visual Quality - Effects primarily related to (1) height and placement of high-rise components resulting in shadows (2) architectural quality of the facility and visual relationship to the surrounding area.	During construction, construction workers parking on neighborhood streets would adversely affect office workers and other commuters who would normally seek spaces later in the morning hours. Local residents would also be effected during the construction period.	During operation, Copley Place would generate a parking demand of approximately 370 spaces in excess of the proposed 1,400-space supply. This shortfall could adversely affect the surrounding parking supply and street network. Competition for spaces may cause inconveniences and delays for patrons of surrounding facilities, as well as Copley Place.
e.)	Shadow. (Section 6.3.2)	Encroachment of shadows at various times of the day and year caused by Copley Place structures on permanent facilities in the surrounding area.	Copley Place would not cast shadows on either Copley Square or the Boston Public Library Courtyard during the spring summer or fall months. Shadows would occur during the winter when these outdoor facilities are least used. The residential areas to the south and west of the project would not be affected by shadows at any time.	No additional effect.
b)	Visual Impact - Effects of the project massing, scale and height in relation to the surrounding environment and the general cityscape viewed by pedestrians and other passersby. (Section 6.3.3)	Illustrative views of the site area with and without the project including changes on the cityscape from selected distant vantage points.	Project design complies with all CHC requirements regarding height, and setbacks. During construction, visual quality would be temporarily impacted as a result of normal construction activities. The completed project is expected to have an overall beneficial effect on the visual quality of the area.	Not applicable.

\*Community Review Committee Guidelines, established in September, 1977.

# 1978 PROGRAM

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DEA Section	Environmental Elements	Standards And Measurements	Potential Effects of Adding A Third Department Store and Related Parking	Potential Effects If Traffic Volume Were Reduced by 10%
			Potential Effects of Two Department Store Plan	Not applicable.
6.4	<b>PUBLIC SERVICES - Effects On the Following services: police and fire; water supply; sewer; schools; medical facilities; neighborhood services; solid waste collection; energy supply.</b>	Ability of service providers to adequately meet the needs generated by Coplay Place without impacting services supplied to others.	All local service providers indicated a potential ability to meet the requirements generated by Coplay Place without adversely affecting general service provision.	No additional effect.
6.5	<b>MIND EFFECTS - Effects caused by high-rise elements of the project which could impact pedestrian and structures in the surrounding area. A detailed wind tunnel study will be prepared as part of the Final Environmental Impact Report.</b>	Mind speeds caused by the high-rise elements which create uncomfortable or unsafe conditions for pedestrian or wind speeds which create disproportional pressure on the surfaces of surrounding structures.	Due to the high-rise elements of the project, there is potential for pedestrian level wind impacts at several locations. The significance of pedestrian level wind effects were qualitatively addressed. Specific final design measures can ameliorate impacts. The wind tunnel study will identify any problem areas. Final design will incorporate mitigative measures to avoid adverse wind effects.	No additional effect.
6.6	<b>NOISE IMPACTS - Effects of noise generated by the construction and operation of the project on sensitive receptors in the surrounding areas. Effects primarily associated with construction activity, increased vehicle traffic, HVAC operations, and decking over portion of Haspilie.</b>	Elevation of noise levels above limits as specified by applicable state and local regulations, and suggested EPA guidelines.	<p>During construction, noise levels would be within applicable standards at all locations except along Harcourt Street. Limits could be exceeded intermittently at this location between construction months 9-10 during daylight hours only.</p> <p>During operation, slight noise increases caused by increased traffic volume associated with the project along Huntington and Dartmouth would be counterbalanced by attenuation of sound due to covering a portion of the Haspilie. This would result in relatively little total change in noise levels in this area. Other sections in the surrounding area may experience a significant decrease (approx. 10%) in noise due to decking of the Haspilie. HVAC operation would not significantly contribute to local noise levels.</p>	The expanded design could require pile driving and additional excavation activities closer to the Marcourt Street area than envisioned under the Two Department Store Plan. Noise levels would be significantly raised at this location during daylight hours when pile driving activity is under way.

\*U.S. Environmental Protection Agency Guidelines Massachusetts General Law Chapter III, Section 162; City of Boston Air Pollution Control Commission, "Regulations for the Control of Noise in the City of Boston", 1976.

\*\*Heating, venting, and air conditioning equipment.

## 1978 PROGRAM

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DRP Section	Environmental Element	Standards And Measurements	Potential Effects of No Department Store Plan
6.7	GEOLOGY & HYDROLOGY - Potential effects primarily associated with existing structures on wooden pilings in surrounding areas caused by periodic construction de-watering of excavations.	Changes in the water table level in the surrounding area.	Dewatering of pile cap excavation is most likely to have an adverse impact on surrounding structures. Detailed soil tests will be conducted before construction begins in order to determine permeability of surrounding soil. Actual dewatering locations will be established to prevent any harm to existing structures. An ad-dition observation well will be installed to monitor changes in groundwater levels. A monitoring station will be established. It would be possible to mitigate any ground water impact through the use of recharge wells.

DRP Section	Environmental Element	Standards And Measurements	Potential Effects If Traffic Volume Were Reduced by 50%
6.7	GEOLOGY & HYDROLOGY - Potential effects primarily associated with existing structures on wooden pilings in surrounding areas caused by periodic construction de-watering of excavations.	Changes in the water table level in the surrounding area.	No additional effect.  Not applicable.

# SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS ASSOCIATED WITH THE COPELEY PLACE PROJECT 1979 PROGRAM

Report Section	Topic	Standards and Measurements	Potential Effects of the Preferred Copley Place Program	Potential Effects of the Optional Copley Place Program	Potential Effects of the No-Build Alternative
7.1	<u>LAND USE.</u> Effects associated with decking and densely developing a vacant urban parcel in a strategic location.	Citizens' Review Committee guidelines for development of the site.	In most respects, the preferred program complies with the major land use guidelines. The project reinforces the commercial character of Back Bay; fills a major existing gap in the urban texture; provides active frontage along Huntington Ave. and Dartmouth St., Harcourt St., and the Southwest Corridor deck; provides activity links between adjoining communities; increases site security; reinforces the existing character of adjacent neighborhoods, and includes 100-150 units of mixed-income housing.	The optional program complies with the land use guidelines in the same way as the preferred program. Conversion of the specialty store to office space involves little or no change in potential for land use impacts. The optional program impacts are not significantly different than those of the preferred program.	There are significant negative impacts related to the lost opportunity to develop and improve the site. None of the goals specified by the Citizens' Review Committee are attained.
7.2	<u>HISTORIC PROPERTIES.</u> Effects of development on nearby historic districts and buildings.	Impacts to historic properties as determined by Section 106 historic review procedures.	Section 106 review is ongoing. The Massachusetts Historical Commission has indicated, however, that the design appears to be complementary and compatible with the nearby historic resources. No physical impacts to any historic properties are anticipated. Final 106 determinations are to be made following final selection of building materials, colors, and textures.	The optional program is identical to the preferred program with respect to potential for impacts on historic resources.	The existing site detracts from the quality of nearby historic resources. Therefore, a no-build decision removes potential for positive impacts with either the preferred or optional designs.
7.3	<u>VISUAL QUALITY.</u> Effects primarily related to (1) height and placement of high-rise buildings; resulting in shadows, and (2) architectural quality of the facility and visual relationship to surrounding areas.	a) <u>Shadows.</u> Effects of project's shadows on surrounding area.	Encroachment of shadows at various times of the day and year caused by Copley Place structures on sensitive receptors in the surrounding area are least used. The residential areas to the south and west of the project would not be affected by shadows at any time.	Shadows associated with the optional program are identical to those with the preferred program.	The no-build alternative does not cast any shadows on the surrounding area.
		b) <u>Visual Impact.</u> Effects of project's massing, scale, and height in relation to the surrounding environment and the general cityscape viewed by pedestrians and other passersby.	The Citizens' Review Committee guidelines for visual quality controls. Illustrative views of the site area with and without the project including changes on the cityscape from selected distant vantage points.	Changes in the external facade may be required to convert the specialty store to office space. This might include expanded window areas and less spectacular access points. In all other areas, the optional program is similar to the preferred program.	No-build entails maintaining the unattractive visual quality associated with the Turnpike ramps and the B&A rail tracks.

**7.4 TRANSPORTATION:** Effects on vehicular traffic, public transit and pedestrian circulation will be associated with both temporary traffic re-routing during construction and traffic generated by the finished project. Parking demand and supply will also be affected.

a) Vehicular traffic: Flow of vehicles on roadways in the surrounding area during construction and operation of the project.

Congestion as measured by changes in level of Service (LOS) on local street network measured for peak hour.

Traffic volumes will increase due to natural growth even with the no-build alternative (22% by 1985). This growth will be smaller than if Copley Place were built. No change in LOS at surrounding intersections would occur by 1985.

boring construction, temporary re-routing of Mass. Pike exiting traffic will cause congestion at several intersections. LOS at Huntington/Dartmouth/St. James will be reduced from C to L. The Stuart/Dartmouth intersection will decline from LOS B/C to O. Construction worker and truck traffic will not have any significant impact on the surrounding road network.

during operation of the project, peak-hour traffic at adjacent intersections will increase. The LOS will drop a step at the intersections of Stuart/Dartmouth, St. James/Dartmouth, Huntington/Harcourt, and Huntington/Harcourt. At the second tier of affected intersections, traffic will increase 5 to 10%. Beyond this, increases will be less than 5% at most intersections. The street system in the immediate surrounding area will be able to absorb the Copley Place traffic.

b) Public transit: Use and availability of transit facilities in the surrounding area during construction and operation of the project.

Change in ridership volumes and/or patterns at peak hours as related to capacity.

Traffic volumes during construction are identical to those of the preferred program. During operation, the optional program will generate the same amount of daily traffic. This traffic will be slightly more concentrated during peak AM and PM commuter hours due to the larger number of office workers.

c) Pedestrian Circulation: Flow of pedestrians in the surrounding area during construction and operation of the project.

Hindrances to the flow of pedestrian traffic causing delays or inconveniences.

Traffic volumes will increase due to natural growth even with the no-build alternative (22% by 1985). This growth will be smaller than if Copley Place were built. No change in LOS at surrounding intersections would occur by 1985.

The Copley Place project will generate approximately 15,000 one-way pedestrian trips on an average weekday. This volume should not cause problems at most of the affected intersections. Existing pedestrian cycles should be adequate although potential congestion problems could occur at the Dartmouth/Stuart Street intersection. Positive pedestrian routing will be required during construction.

The optional program will generate the same number of daily trips to the site above that related to the Orange Line relocation. The pedestrian environment will be improved. Access to the South End will be possible from Harcourt Street due to the Southwest Corridor deck.

The no-build alternative would result in no additional pedestrian trips to the site above that related to the Orange Line relocation. The pedestrian environment will be improved. Access to the South End will be possible from Harcourt Street due to the Southwest Corridor deck.

This alternative will have less appeal for pedestrians due to less retail frontage and a less spectacular main entrance on Dartmouth Street.

The optional program will generate the same number of daily trips to the site above that related to the Orange Line relocation. The pedestrian environment will be improved. Access to the South End will be possible from Harcourt Street due to the Southwest Corridor deck.

Report Section	Topic	Standards and Measurements	Potential Effects of the Preferred Copley Place Program	Potential Effects of the Optional Copley Place Program	Potential Effects of the No-Build Alternative
d) <u>Parking Supply.</u> Effects on availability of parking spaces in the surrounding area during construction and operation of the project.	Inconvenience and delays caused by demand for spaces in excess of supply.	Construction period impacts would be similar. Although the number of employees is greater in this alternative, there also will be more parking spaces available for workers because fewer will be reserved for shoppers. Therefore, the shortfall is the same for this alternative. All other parking impacts are equal.	The no-build alternative will create no additional demand for parking spaces.		
7.5 <u>PUBLIC SERVICES.</u> Effects on the following services: police, fire, water, sewer, schools, medical facilities, neighborhood services, and solid waste collection.	Ability of service providers to adequately meet the needs generated by Copley Place without impacting services supplied to others.	All local service providers indicated a potential ability to meet the requirements generated by Copley Place without adversely affecting general service provisions. The project will require an average daily water usage of 372,000 gallons and will result in an average daily sewage discharge of 309,000 gallons. Compacted solid waste generated per day is 67 cubic yards.	This alternative will use slightly less water (2%) and discharge proportionally less sewage and solid waste. This is the result of reduction in the waste-intensive retail and restaurant components in favor of less intensive office use. All other service requirements would remain the same.	With the no-build alternative, additional demand on services will not arise.	
7.6 <u>AIR QUALITY.</u> Effects associated with inducing vehicular traffic and its automotive pollutants. Effects of changing local wind flow patterns and adding new ventilation facilities.	Attainment of ambient air quality standards at critical receptor locations in the project area. Changes in neighborhood background air quality.	During the construction period for Copley Place short-term adverse effects on air quality adjacent to the site and major construction routes may occur. Activities associated with demolition, earthwork, spoils removal and various other site work will generate fugitive dust, which would result in some short-term local increase in TSP. Both the 1 hour and 8 hour CO standards are attained following construction of the preferred program. CO concentrations show considerable improvement with lower concentrations than currently exist at nine of eleven critical receptor locations. Improvements are due to increased efficiency of pollution controls on vehicles and modification of local dispersion resulting from decking and venting the development site.	There is no measurable difference in air quality between the preferred and optional plans. Emissions and dispersion characteristics are insignificantly changed. Construction impacts are considered equal.	The no-build involves no construction, hence there is no potential for short-term TSP problems.	There are no exceedances of air quality standards with the no-build alternative. Air quality improves from existing conditions solely as a result of improved vehicular emission controls. This alternative is neither significantly better nor worse than the build alternatives from an air quality standpoint.

No exceedance of CO, NO<sub>2</sub>, or TSP guidelines or standards are predicted under the proposed deck or within the garages.

Report Section	Topic	Standards and Measurements	Potential Effects of the Preferred Copley Place Program	Potential Effects of the Optional Copley Place Program
7.7	<u>MIND EFFECTS</u>	Wind speeds caused by the high-rise elements of the project which could increase wind speeds at pedestrian level and/or other buildings.	Wind speeds caused by the high-rise elements which create uncomfortable or unsafe conditions for pedestrians or wind speeds which create disproportionate pressures on the surface of surrounding structures. Quantitatively measured by wind tunnel testing	The potential wind impacts associated with the optional program are identical to the preferred program.
7.8	<u>NOISE</u>	Effects of noise generated by the construction and operation of the project on sensitive receptors in the surrounding area. Effects primarily associated with construction activity, increased vehicular decking over portion of Mass. Pike.	<p>Increase in noise levels above limits as specified by applicable state and local regulations, suggested EPA guidelines and existing noise levels representative of Back Bay.</p> <p>During construction, noise levels may exceed city regulations governing construction noise in residentially zoned locations. Noise levels will not exceed regulations for business zones.</p> <p>During operation, slight noise increases caused by increased traffic volumes associated with the project along Huntington and Dartmouth would be counterbalanced by attenuation of sound due to covering the Mass. Pike. This would result in a modest decrease in noise levels in this area. Other sections in the surrounding area may experience a significant decrease (approx. 10%) in noise due to decking of the rail line. HVAC operation would not significantly contribute to local noise levels.</p>	<p>Noise impacts will be the same for this program as for the preferred program.</p> <ul style="list-style-type: none"> <li>The no-build alternative would result in nearly the same noise level as the two build alternatives. With the no-build there will be a smaller increase in traffic in the area, but the noise from Mass. Pike will not be eliminated by decking. These two factors should balance out. The decking of the Southwest Corridor will cause a reduction in noise level nearby.</li> </ul>
7.9	<u>HYDROLOGY AND HYDROLOGY</u>	Effects related to lowering of the water table when dewatering for pile caps and pile driving during construction.	Level of water table. Associated potential for deterioration of piles supporting surrounding buildings. Damage caused by pile driving vibrations.	<p>Geology and Hydrology impacts related to the optional program are identical to the preferred program.</p> <p>The no-build alternative will have no effect on existing conditions.</p>
7.10	<u>VEGETATION AND WILDLIFE</u>	Effects on existing vegetation and wildlife by altering habitat.	Endangering or significantly decreasing a valuable population. Destroying visually appealing vegetative environment.	<p>This alternative will have the same effect on vegetation and wildlife on the site.</p> <p>The no-build alternative will allow the limited grass habitat to remain for urban birds and rodents.</p>
7.11	<u>ENERGY</u>	Effects on gas, electricity and steam demand.	Ability of service companies to meet the demand. Mitigation measures.	<p>This alternative will require slightly more electricity and slightly less steam than the preferred alternative. Gas usage will remain the same.</p> <p>No-build will eliminate Copley Place as a specific component to future demand for energy.</p>

Topic	Potential Effects of the Preferred Copley Place Program	Potential Effects of the Optional Copley Place Program	Potential Effects of the No-Build Alternative
<b>SOCIOECONOMICS</b> Effects on employment, residential property values, supply and demand, retail sales, office space, and supply of hotel rooms.	Number of new jobs. Distribution among local residents. Payroll levels.	Copley Place will generate 650 construction jobs per year for 14 years. Copley Place will create 6,266 permanent jobs with annual payrolls equaling \$196 million in 1979 dollars. Specific hiring goals for permanent employees have been established for 50% Boston residents, 50% women, 30% minorities, and 17.1% residents of surrounding neighborhoods.	This alternative will generate the same number of construction jobs and 6,684 permanent jobs. Annual payrolls will equal \$106 million in 1979 dollars. Hiring goals remain the same as in the preferred alternative.
a) Employment. Effects on local employment.			The no-build alternative will not cause new temporary or permanent jobs.
b) Residential Property Impacts. Effects on supply and demand of local residential space. Effects on local real estate value.	Rental rates, vacancy rates and local real estate sales prices.	Copley Place will increase housing demand in surrounding neighborhoods by an estimated 980 units. The average annual demand over a 5-year period will be 200-210 units, or 11-15% of total annual housing demand in the study area. Consistent with city housing policy, # number of proposals for both market-rate and subsidized housing are available to help satisfy this demand.	The alternative will not create a demand for 1,050 units of housing in the study area. This is slightly higher than the preferred program but should not cause a significant difference in demand or price impacts associated with it.
c) Retail Sales. Effects on nearby retail areas.	Rental rates, vacancy rates in nearby retail complexes.	Overall, the impact of Copley Place upon residential rents and property values in the study area is expected to be modest, contributing about 1% to the annual increment.	The optional program reduces retail sales because the department store is eliminated, and the amount of mall retail space is reduced. Total sales for this program should amount to \$39 million by 1983. This design would increase spin-off sales, to the Back Bay, to \$15.3 million since the number of on-site office workers would increase while on-site sales would decrease.
d) Office Space. Effects on office space market.	Rental rates of office space. Demand, absorption rates, and supply of offices.	There is a serious shortage of office space in Boston. The present absorption rate in Back Bay is 348,000 GSF per year. Copley Place, with 641,000 gross leasable square feet, will be able to absorb 2 years of demand. The cost of this space will be higher than the smaller offices in Back Bay and thus should not compete with these buildings.	The optional program will provide 836,000 gross leasable square feet of office space. This will enable Copley Place to absorb 2½ years of demand for office space in Back Bay.
e) Hotel Space. Effects on the hotel room market.	Predicted demand and capacity of hotels in Boston. Types of hotels needed.	An estimated 11,000 new hotel rooms will be needed by 1990 to meet increasing demands by businessmen, tourists, and conventions. The two hotels in Copley Place are estimated to capture 25% of the convention trade and 12% of the tourist and business market.	The no-build alternative will not help relieve the shortage of hotel rooms in Boston.

**APPENDIX K - DESIGN REVIEW AGREEMENT**



COPLEY PLACE  
DESIGN REVIEW AGREEMENT

AGREEMENT made this 22<sup>nd</sup> day of September , 1980, by and between the City of Boston (the "City") by and through its Planning Agency, the Boston Redevelopment Authority (the "Authority") a public body, politic and corporate, created and existing pursuant to Chapter 121B of the Massachusetts General Laws, (Ter.Ed.), as amended, and Urban Investment and Development Co. ("UIDC"), a Delaware corporation duly organized in accordance with law and duly qualified to do business in Massachusetts.

WHEREAS, UIDC is the developer of the Copley Place project in the Copley Square area of the City of Boston; and

WHEREAS, in furtherance of the provisions of Chapter 505 of the Acts of 1963 and in accordance with the safeguard procedures of the State and Federal Environmental controls, the City desires to exercise design review of the project; and

WHEREAS, numerous design issues have not been fully resolved to date between the City and UIDC; and

WHEREAS, certain issues related to mitigation of pedestrian level winds have not been fully resolved to date between the City and UIDC; and

WHEREAS, the parties hereto intend that this Agreement set forth the mechanism for resolving present and future design issues for the EIR/EIS document to be considered complete by the City of Boston NOW, THEREFORE, in consideration of the foregoing, the parties hereto mutually agree as follows:

1. The Authority hereby approves the plans heretofore submitted to it (hereinafter the "Schematic Plans") a list of which is attached hereto, as Exhibit A, with the exception of the elements enumerated in Exhibit B attached hereto (the "Open Items").

2. With respect to resolution of issues listed under "Open Items", and with respect to production of Design Development Drawings, Preliminary Working Drawings, Final Contract Drawings and Specifications from the approved Schematic Plans, and with respect to design issues newly arising from this process, the following procedure is applied:

- a. Urban will submit to the Authority all such plans.
- b. The scope of Authority review with respect to Design Development Drawings, Preliminary Working Drawings, Final Contract Drawings and Specifications will be a determination that they are or are not a logical and consistent development from the approved Schematic Plans.
- c. The scope of the Authority review with respect to Open Items will be a determination that they are or are not consistent with (i) the requirements of the Air Rights Lease, (ii) the approved EIR/EIS; and (iii) sound urban planning and architectural concepts.
- d. The Authority will review such plans and submit its written comments if any, within fifteen (15) days of receipt.
- e. Resolution of Open Items shall be accomplished as part of the review and approval process at the Design Development Stage.
- f. All design issues which newly arise from the further development of architectural plans and specifications shall be resolved in accordance with the design review process herein described.
- g. Urban will use all reasonable efforts to incorporate the Authority's comments consistent with the above into the construction plans and specifications for Copley Place to the extent that such comments will not, in the judgment of Urban reasonably exercised, result in a substantial increase in the cost of the element of the Project in question or be likely to result in a substantial construction delay. Urban shall submit to the Authority written justification for any determination that such a cost increase or delay will occur.
- h. If the Authority disagrees with such conclusions, it shall state in writing within fifteen (15) days its disagreement and its reasons therefore, and Urban shall thereupon promptly respond to such objection with a substituted design or counter proposal, and the process will repeat until all items are resolved.

- i. No construction shall begin on any element of the project not approved by the Authority pursuant to this procedure, nor on any sub-element of the project which could substantially affect the future resolution of any Open Items and design issues remaining unresolved at the time of such construction.

IN WITNESS WHEREOF, on the date first written above, the parties hereto have caused this Agreement in three counterparts to be signed, sealed and delivered by their duly authorized officers, respectively.

Signed, sealed and delivered in  
the presence of:

CITY OF BOSTON

By Kevin H. White  
Kevin H. White, Mayor

BOSTON REDEVELOPMENT AUTHORITY

By Robert J. Ryan, Director  
Robert J. Ryan, Director

URBAN INVESTMENT DEVELOPMENT  
CORPORATION

By Kenneth A. Minott

Approved as to form:

Harold J. Carroll  
Harold J. Carroll  
Corporation Counsel - City of Boston

Ronda Silberberg Canter  
Ronda Silberberg Canter  
Asst. General Counsel - BRA

EXHIBIT A  
COPLEY PLACE

SCHEMATIC PLANS, PARTIAL DESIGN DEVELOPMENT PLANS AND SPECIFICATIONS

1. Hotel Boston at Copley Place  
The Architects Collaborative

1 set of Design Plans, 9/11/80  
Sheets: 4.001 thru 4.021  
5.001 thru 5.004  
5.010 thru 5.103  
5.201 thru 5.203

1 copy of Outline Specifications

2. Copley Place - Marriott Hotel  
Marriott Corporation

1 set of Design Plans 9/9/80  
Sheets: 1 thru 7  
10 thru 21, 31

1 Copy of Outline Specifications

3. Copley Place - Central Area  
The Architects Collaborative

1 Set of Progress Prints 7/11/80  
Sheets: 1 thru 15

1 copy of Outline Specifications for office towers only

4. Copley Place - Landscape Plans  
The Architects Collaborative

1 set of Design Plans, 9/9/80  
Sheets: A thru K

5. Copley Place - Pedestrian Bridge Plan  
The Architects Collaborative

1 set of Design Plans 9/11/80  
Sheet: 19

6. Copley Place - Housing Plans  
Vitols Associates

1 set of Housing Plans, 9/1/80  
Sheets: 1 thru 5

7. Copley Place - Site Plan with Building Lines  
Parsons, Brinckerhoff, Quade and Douglas &  
Urban Investment and Development Co.

1 set of Site Plan with Building Lines 9/10/80

EXHIBIT B

OPEN DESIGN ITEMS

1. The design of active pedestrian uses, sidewalks, and building form on both sides of the Stuart Street corridor.
2. The architectural treatment of Copley Place elevations along the Southwest Corridor deck.
3. The architectural treatment of the Marriott Hotel tower elevations.
4. The design and form of the housing element of the project.
5. The specific treatment of the proposed Western International Hotel Cafe.
6. The treatment of the Neiman Marcus exterior elevations along Dartmouth Street.
7. The design of the glass shed structure connecting Back Bay Station Tunnel and South Mall entrance.
8. Satisfactory resolution of issues concerning the landscape design of the Turnpike deck cover, and architectural treatment of the adjacent Stuart Street facade.
9. Satisfactory resolution of the establishment of measures to mitigate pedestrian level winds including any wind tunnel testing necessary to investigate any such measures.

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(BACK BAY)  
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CD

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